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ABSTRACT

This monograph reports on innovative models and practices in American undergraduate education from the late 1940s through the late 1990s, focusing particularly on four areas: curriculum; teaching and learning; calendar and clock (time); and faculty development. The study encompassed an extensive review of the literature as well as a survey of public and private Carnegie classification colleges and universities (n=49). Following the introductory chapter, "Reflections on the Half Century," Chapter 2 examines the undergraduate curriculum (organization of programs/administrative units); space (on-/off-campus, media-based, international); and resources (faculty, noninstructional staff, materials/equipment). Chapter 3 examines undergraduate teaching and learning, including content-, student-, and interaction-centered instruction. Chapter 4 looks at various curriculum calendars; calendar duration; and curricular clock (weekday/weekend). Chapter 5 discusses the changing character of faculty work, faculty development models, and changes in process and attitude. Chapter 6 examines costs and benefits of educational innovations from objectivist, actions model, and constructivist perspectives. Chapter 7 offers some lessons learned: think locally, but look globally; think small first, then more expansively; consider organizational culture; think in comprehensive terms; secure sufficient funding; inform important constituents; build your case; link innovations to rewards systems; and ensure leadership through service rather than command and control. Appended is a list of institutions participating in the survey. (Contains 18 references.) (CH)

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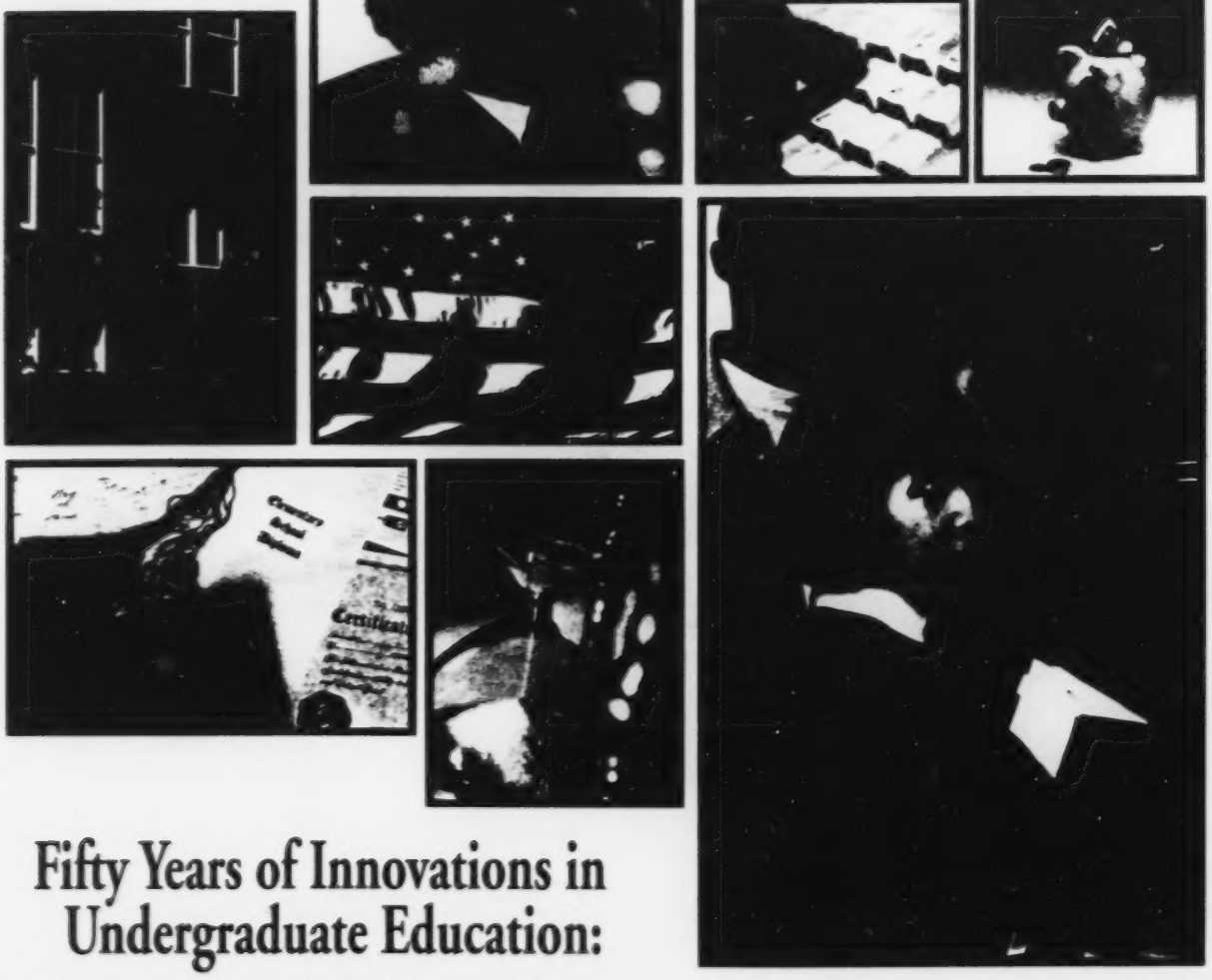

Fifty Years of Innovations in Undergraduate Education:

Change and Stasis in the Pursuit of Quality

Gary H. Quehl, William H. Bergquist and Joseph L. Subbiondo
CSI Center for the Study of Innovations in Higher Education

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Acknowledgments

We thank the USA Group Foundation for providing the financial support that enabled us to document, catalogue, interpret, and disseminate through this report what we learned about undergraduate educational innovations over the last half of the 20th Century. We particularly appreciate the thoughtful counsel given throughout our research by Robert C. Dickeson, the foundation's head and USA Group's senior vice president for corporate advancement. Dr. Dickeson encouraged our work from the very beginning by his deep conviction that lessons learned from past innovations can greatly benefit undergraduate education during the new millenium.

We also give thanks to two long-standing colleagues, Jerry Gaff and Jonathan Fife. Each generously provided assistance in connecting us with human resources and data bases that were essential to the research.

The creation of this monograph would not have been possible without the unselfish commitment, energy, and tenacity of an extraordinary group of individuals—the Center's Research Fellows. We are indebted to each of them for the great care and ingenuity that they demonstrated in reviewing standard texts, scanning the Internet, and securing written reports and other materials from obscure sources. We also acknowledge the quality of mind that the Research Fellows brought to the entire process, and particularly their skill in synthesizing large amounts of information. We dedicate this monograph to these exceptional professionals, all Canadians: Valarie Cochran, Linda Coyle, Anne Cumming, Jan Lindsay, Margo McMahn, Julie Martin, Ken Pawlak, and Janice Seto.

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TABLE OF CONTENTS

Chapter One	Reflections on the Half Century	2
Chapter Two	Undergraduate Curriculum	7
Chapter Three	Undergraduate Teaching and Learning	21
Chapter Four	Calendar and Clock in Undergraduate Education	32
Chapter Five	Faculty Development for Undergraduate Education	39
Chapter Six	Costs and Benefits of Undergraduate Educational Innovations	46
Chapter Seven	Lessons Learned about Undergraduate Educational Innovations	54
	Institutions Participating in the Innovations Survey	58
	Endnotes	59

Chapter One:
Reflections on the Half Century

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"The nature of things is resistance to change, while the nature of process is resistance to stasis...yet things and process are one, and the line from inorganic to organic is uninterrupted and unbroken" — Blue Highways, 1982

The richness of undergraduate educational innovations during the last half of the 20th Century was unprecedented. It is for good reason that much of the era is regarded as the "Golden Age of Innovation" in American higher education.

Unfortunately, our understanding and continued use of innovations from this period are undermined by certain constraints. First, many educational innovations were relatively short-lived because they were unable to compete for scarce resources with vested practices or were unseated by the force of conventional wisdom. Second, many innovations misfired because inadequate attention was given to the processes that are required for successful implementation. Third, while literature on individual innovations is available, source material that specifically tracks the dissemination and influence of these innovations largely is not. Fourth, many of the academic and other leaders who provided the generative impetus for significant innovations have died or retired; as such figures continue to pass from the scene, so, too, will the visions, purposes, and values that motivated their reforms. Fifth, half a century ago a high school diploma was the norm; then, the baccalaureate degree. Now, it is the graduate degree, and especially the master's degree. If undergraduate education merely becomes a "pass-through" degree, there may be diminished incentive to learn from past innovations or undertake new ones.

Despite these obstacles, we at the Center for the Study of Innovations in Higher Education (hereafter the Center) are sanguine about the relevancy of past innovations to present and future practice. This monograph is dedicated to a single premise: higher education and the American public will be well-served if undergraduate innovations over the past fifty years are documented, catalogued, interpreted, and widely studied.

There are lessons to be learned about how innovations get started and blossom, are socialized and become mainstreamed, or fall dormant and die. There are policy implications about the costs and benefits of innovations. There are things to be known about the nature of innovation itself—for example, an innovation need not spark a "movement" to have value; generativity lies in the capacity of an

innovation to be discovered anew by a single individual (or institution) who is compelled to act on its promise. No better case need be made for the creative reconsideration of past innovations and the invention of promising initiatives in the new millenium.

The External Drivers

Most undergraduate innovations over the past 50 years were purposeful responses to extraordinary influences in American society. Fortunately, the history of this period has been thoroughly chronicled, so we need but capture major themes of the period here.[1]

The mid-to-late 1940s through the early 1960s produced unparalleled challenges for American higher education. An unexpected number of returning World War II veterans pursued higher education through the GI Bill of Rights. Shortly thereafter, the launching of Sputnik by the Soviet Union awakened the country to the need for aggressive scientific and technological advances to compete with a looming adversary. By the early 1960s, increased birthrates had produced a "tidal wave" of new college students unequaled in the American experience.

From the 1960s through the late 1970s, the national agenda shifted dramatically. A period of major civil unrest, galvanized by the Vietnam War and the struggle for political and economic rights of minorities and women, produced profound changes in American values and priorities. For higher education these changes greatly influenced the rise of egalitarian reforms. Educational opportunities for women and under-served minorities expanded; nontraditional education began to challenge meritocratic ideas about whom college is for, what quality means, and how education should be conducted. With the benefit of hindsight, we are able to conclude that the greatest amount of innovation and experimentation in undergraduate education occurred during this period.

Almost simultaneously, the late 1970s became a period of growing doubt and alarm within American higher education; most of the "tidal wave" of students had passed through the system. Great pessimism arose over the impact of unbridled economic inflation and the prospect of a precipitous decline in student enrollments (for a variety of reasons, a fear that was never fully realized). Fretting about these formidable problems during the 1980s, college and university leaders were caught off-guard when a series of highly visible national reports (most notably, A *Nation At Risk*—"a rising tide of mediocrity"), severely criticized the quality of education. Initially directed at elementary and secondary education higher education soon was indicted as well. A perception swept the country that a serious mismatch existed between the purposes and outcomes of higher education and the needs of the American workplace and economy. In short order, the new challenge for higher education was to ensure the nation's competitiveness in the global economy. The "Age of Accountability" for higher education had arrived.

What began in the 1980s intensified throughout the 1990s, and frequent calls for accountability came to mean much more than producing educational outcomes that were commensurate with costs. The public in its various forms demanded price and cost containment; clarity and differentiation of purpose; educational quality defined in terms of career readiness; technological updating and transformation; and an emphasis on traditional values, sharply honed critical thinking, responsible team-play, and continuous life-long learning. Indeed, as the old millenium ended, it was clear that most of American higher education had rather thoroughly become "...a market-driven enterprise, where the consumer is sovereign."[2]

Most undergraduate innovations over the past 50 years were purposeful responses to extraordinary influences in American society.

Innovation is grounded in the way most of the rationally conscious world actually works.

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The Internal Drivers

The foregoing analysis flies in the face of received wisdom within the Academy, which assumes that colleges and universities are at the leading rather than the trailing edge of American society. While it is true that higher education makes significant social contributions through teaching, research, and service, it is but one of many institutions that shape and influence the nation. The same can be said about innovations in undergraduate education: they appear mostly to have been *adaptive* responses to challenges from the external environment rather than self-motivated initiatives that reflect historical processes and tendencies that are innate to most colleges and universities.

There is little need to fully rehearse the truisms about why and how colleges and universities resist change more than most organizations. Suffice it to say that the Academy's ancient lineage inclines it to preserve rather than to challenge the status quo; by nature it is a cautious and conservative institution. Also, changing the behavior of adults is a formidable task in any organization, but college and university faculty and administrators are a breed apart; their patterns of thought and behavior have been inculcated through years of structured schooling and are reinforced and protected by that very system and experience.

In any event, *progressivism*, the school of educational thought that influenced so much of undergraduate innovation during the last half of the 20th Century, has greatly declined over the past 20 years. Even *essentialism*, the educational philosophy that has sought to preserve and promote the great ideas and intellectual traditions of western civilization, has been unsuccessful in reclaiming the mantle of American undergraduate education. Instead, much of higher education during the early years of the new millenium is in the hands of postmodern relativists ("quality is whatever you believe it to be") and economic realists—academic pragmatists who value undergraduate reform as but one of several strategies for anticipating and responding to external change in order to position their institutions for greatest competitive advantage in a marketplace that "takes no prisoners."

The danger is that the aggressive search for financial and organizational security inadvertently threatens to replace the pursuit of educational quality as the *raison d'être* of American higher education. While this is not to argue against acquiring the means to compete successfully (the higher education markets are no places for timidity), it is to say that planned change—that species of change called *innovation*—is essential in reasserting the primacy of high quality undergraduate education.

Lest we be misunderstood, we do not see innovation as the means to utopian perfectibility in undergraduate education. We reject as a primary purpose of innovation the fantasist notion of planned experimentation for its own sake. We also reject the thinly veiled essentialist view that stasis is either desirable or possible—even St. John's College now includes classics from Eastern Civilization in its Great Books Curriculum. We believe, instead, that innovation is grounded in the way most of the rationally conscious world actually works. Rather than being an esoteric activity, innovation is better understood as a staple, like meat and potatoes; its inspiration draws on the problem solving methods of the natural and social sciences and the insights and intuition of the humanities. Done well and with integrity, innovation in undergraduate education is at the center of the dynamic tension between stasis and change—an ever-unfolding and unbroken process.

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Grounding Innovations in Economic Reality

Of all areas that we studied, the financial costs and benefits of undergraduate innovations proved the most vexing. The public literature on undergraduate educational innovations has little to say about cost/benefit relationships *per se*. We conclude from the limited evidence that innovations during the 1960s through the late 1970s typically were undertaken without rigorous regard for financial costs; instead, primary value and emphasis were placed on the educational *benefits, or effectiveness,* side of the equation. However, when anxiety about run-away inflation and the prospect of declining enrollments came to dominate the 1980s, most colleges and universities desperately retreated into cost-cutting measures and "safe" educational practices. In short, the focus dramatically shifted from educational benefits to educational costs—where it remains today.

Only as we scanned recent literature did we find some evidence of systematic attention being given to the study of cost/benefit relationships: the greatly expanding role of technology in the delivery of education. Because the "Age of Accountability" for American higher education has crossed from one millenium to another, we anticipate that cost/benefit analysis will receive even closer scrutiny—and we believe it should. Especially needed is a new working model for assessing the cost/benefit relationships of undergraduate educational innovations that is based on economic realism and the need for colleges and universities to continuously position themselves for greatest competitive advantage.

As we later point out, this new model will require more than an allegiance to the "objectivist," business-industrial model of cost/benefit analysis that has consistently missed the mark in higher education for the past 50 years. Institutions of higher learning march to a different drum, and we believe a "constructionist" approach to cost/benefit analysis is the way to the future. We briefly describe this perspective in Chapter Six.

Purpose and Methods

This monograph reports major findings on innovative models and practices in American undergraduate education during a period roughly spanning the late 1940s through the late 1990s. To delimit the scope of the Center's research, we have focused on four areas of undergraduate innovations: *curriculum, teaching and learning, calendar and clock (time), and faculty development.*

The Center's investigators and research fellows approached the challenge in two ways. The first, and most far-reaching, involved an extensive literature review of each of the four areas of undergraduate innovation; we used a variety of print and electronic means to identify and retrieve relevant information. In every case, the literature search generated such a massive amount of information about specific innovations and practices that it is impossible to report more than a synthesis of major findings in this slim volume. The reader who wants deeper understanding of particular practices and models, or a listing of our primary and secondary sources, will want to access a web site (www.psp.edu), where we have assembled two substantial documents: *Encyclopedia of the Collegiate Curriculum* (related to Chapters Two, Three and Four) and *Encyclopedia of Collegiate Professional Development* (related to Chapter Five).

A companion research method involved the construction and distribution of *A Survey of Undergraduate Educational Innovations.* John Minter Associates assisted us in identifying a random sample of 400 colleges and universities that are proportionately representative of both institutional type (public and private) and

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Our purpose was to gain insights into 50 years of undergraduate innovations from the perspective of on-campus practitioners.

the nine Carnegie Classifications (Two Year, BA I, BA II, MA I, MA II, D I, D II, R I, R II.) Our purpose was to gain insights into 50 years of undergraduate innovations from the perspective of on-campus practitioners. The Survey was organized into two major areas of institutional innovation: (1) curricular structures and (2) processes of undergraduate education. Curricular structures were reported for the years of implementation, and educational processes were identified in terms of frequency. In both sections, the Center relied on the self-reporting of participating institutions.

Of the 400 randomly selected chief academic officers sent invitations, 74 (19%) agreed to have their institutions participate. In the final analysis, the Center received 49 (12%) completed Survey returns. This is a reasonably good response for direct mail—especially given that each chief academic officer was asked to assemble a team of senior faculty who would be willing to spend three or four hours collectively completing the Survey during the late spring of 1999.

Institutions responding to the Survey included 25 public and 24 private colleges and universities that nearly reflect the selected Carnegie typology: Three were Doctoral/Research I and two were Doctoral II Universities. Ten were Master's (Comprehensive) I and three were Master's (Comprehensive) II Colleges and Universities. Five were Baccalaureate (Liberal Arts) I Colleges, nine were Baccalaureate (Liberal Arts) II Colleges, and 17 were Associate of Arts Colleges. The regional representation of responding institutions was good (28 different states, and all regions except the Southwest). Colleges and universities that participated in this survey are listed at the end of this report.

We believe our Innovations Survey was an important first step in assessing undergraduate innovations over the past half century through the eyes of the institutions themselves. Several cautionary statements, however, need to be made. First, our hope that John Minter Associates' random sample would produce Survey responses from a statistically representative group of the Carnegie typology was not fulfilled. The actual returns did not approximate a fully representative distribution. Given our subject, undergraduate education, it is not surprising that Doctoral I and II Universities, and Research I and II Universities, were under-represented in Survey returns. Furthermore, there are insufficient numbers in each Carnegie classification to arrive at any substantive conclusions—although we offer tentative observations about differences in institutional type throughout the monograph. Thus, the results we have reported from the Survey must be taken as preliminary and suggestive rather than definitive. However, if time had permitted the distribution of a supplementary Survey to doctoral and research universities, we are confident the results would largely parallel the findings reported in this monograph as national trends in the United States.

Chapter Two: Undergraduate Curriculum

Much of the history of innovation in undergraduate education over the past 50 years is rooted in deliberations about the way in which colleges and universities organized their curricula, defined and used space for instruction, and allocated and applied instructional resources (both people and materials). This chapter reviews these factors of undergraduate curriculum.

Organization

Organization determines the route of academic travel in at least two ways: instructional offerings that constitute degree programs and the academic administrative units that enact the curriculum.

Organization of Degree Programs

The variety of ways in which colleges and universities are organized reflects the diversity of missions and purposes to be found in American higher education. But commonalties are shared among these institutions as well. All of the institutions that completed our Survey of Undergraduate Innovations indicate they offer courses based in the disciplines and the professions, and most (87%) teach interdisciplinary courses. A surprising 66 percent of the surveyed institutions offer vocational degrees (e.g., home economics and real estate), with 55 percent of the BA II Colleges, 83 percent of the MA II Universities, and 33 percent of the D I and II Universities teaching vocational courses. Perhaps these figures reflect the increased preference of re-entry students to seek professional development opportunities over the past 50 years. Certainly, the notion that higher education is not interested in preparing students for the world of work has become a myth—at least for the reporting colleges and universities.

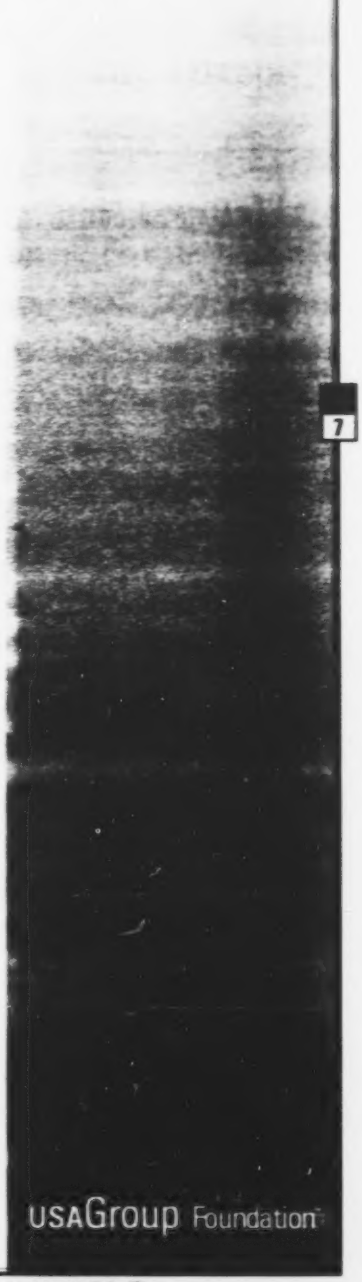
Very few institutions require all of their undergraduate students to take precisely the same course of study. Most follow the practice of having about one-third of a student's undergraduate education spent in an academic major, or area of concentration, with two-thirds devoted to broadening experiences through prescribed general education or student electives. Many continue to offer the possibility of a second area of lesser concentration, or the minor.

Of course, there are variations in how degree programs are organized. Some institutions encourage students to major in two or more areas to add breadth and avoid the excessive specialization that pervades many single-major programs. Half of the colleges and universities surveyed offer dual majors, with BA I Colleges leading the way in having offered them for over 25 years. Given the heavy workloads demanded by this approach, however, only small numbers of students appear to avail themselves of double major options. (A partial solution to the overload problem is interdisciplinary majors that attempt to integrate two or more fields of study.)

Another option, offered at many colleges and universities, is the student-centered degree program. This option tends either to combine two or three disciplines or to focus on a particular period, problem, or culture in using materials from several academic departments; student-created degree programs seem to be particularly successful with adult students.

Yet a third method of creating interdisciplinarity is the learning community model. This approach deliberately

Organization determines the route of academic travel.



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The central focus of most multidisciplinary units seems to be budgetary control rather than curricular or instructional planning.

links courses or course work during the same semester so that students can find a high degree of coherence in what they are studying and can strengthen intellectual interaction with faculty and other students.

These various models hold many advantages for faculty and students who seek to integrate disparate perspectives and address real problems in an interdisciplinary manner. However, these models also tend to stimulate turf wars among academic departments and often lead to complications in accounting for income and costs. The disciplinary silos of contemporary colleges and universities, and the firewalls that separate them, are no more visible than when debates during faculty meetings focus on proposals to reorganize departments and disciplines around interdisciplinary themes or career clusters.

Organization of Academic Administrative Units

The nature and character of undergraduate curricula are greatly influenced by the ways in which the academic program is organized and administered. In 1950, most colleges and universities were organized into academic departments based on disciplinary fields and administered by faculty chairs. Since then many institutions have moved away from the department as the sole or primary form of organization—either due to insufficient numbers of faculty in certain disciplines (mostly the case with small private colleges) or the desire to reduce educational costs by eliminating academic administrators.

While power continues to reside with the individual disciplines, multidisciplinary divisions, schools, and colleges largely have replaced the department as the principal academic administrative unit; to date, the central focus of most multidisciplinary units seems to be budgetary control rather than curricular or instructional planning.

During the late 1960s and early 1970s, there was a remarkable flourishing of interdisciplinary programs and an accompanying proliferation of cluster colleges (e.g., at the University of the Pacific, University of California at Santa Cruz, and University of California at San Diego) and interdisciplinary academic units (e.g., ethnic studies, women's studies, community service, ecological studies, urban studies). However, these interdisciplinary colleges and units experienced great difficulties due to the often transitory character of program themes, the fact that power resided in the disciplines, the tendency of faculty to become isolated from the "mainstream" of their institutions, and the incapacity of most participating faculty to mediate the values, dispositions, and boundaries of their individual disciplines.

Another way to address the difficult problem of introducing interdisciplinary studies into the curriculum is the establishment of short-or medium-term institutes or centers that supplement the traditional offerings. Such entities take one of three forms: standard institutes (stable goals, long-lasting, permanent staff, managerial hierarchies—e.g., agricultural and forestry field stations), adaptive institutes (continually defining goals, initiating and terminating projects, securing and releasing staff—e.g., educational research, water resource centers), and hollow organizations (focus on a specific theme or problem for a short time, but without staff, space, or budget).

While used but rarely over the past 50 years (e.g., the University of Wisconsin at Green Bay, Ottawa University), a fourth way of structuring academic affairs is the matrix organization—in which multiple sources of information and control exist at virtually all levels of an institution. Matrix organizations are complex and difficult to operate, but three conditions have been used to justify this structure: two or more

central goals, changing and relatively unpredictable demands for diverse and complex services, and the need for extensive sharing of resources within institutions that have major asset limitations. The matrix structure was said to have great promise during the 1970s and was often prescribed as an answer to many pressing problems in higher education. However, it never gained much acceptance—mostly because traditional academic administrative units were too powerful to willingly share authority with other kinds of program units.

Space

Space has always played a vital role in all aspects of teaching and learning, and there are many ways in which it is used to facilitate both. We turn first to the alternative uses of campus space and then proceed to ways of using space to facilitate student off-campus learning. Our scope extends from the campus to the local community, mobile space, simulated space, and, eventually, the entire world.

On-Campus Learning

In 1950 most undergraduate instruction took place in formal classrooms, laboratories, and studios. However, as Arthur Chickering noted in his insightful comparison of residential and commuter students, much of what students learn occurs outside these formal environments—dormitory, student union, hallways, on the job.[3] All of the institutions completing our Innovations Survey say they make extensive use of traditional classrooms and computer labs, and nearly all have language labs and studios. Most BA I and II Colleges have courses in residence halls, and half of all responding institutions report such offerings. This difference is due to undergraduate programs of comprehensive and doctoral institutions being far less residential than liberal arts colleges.

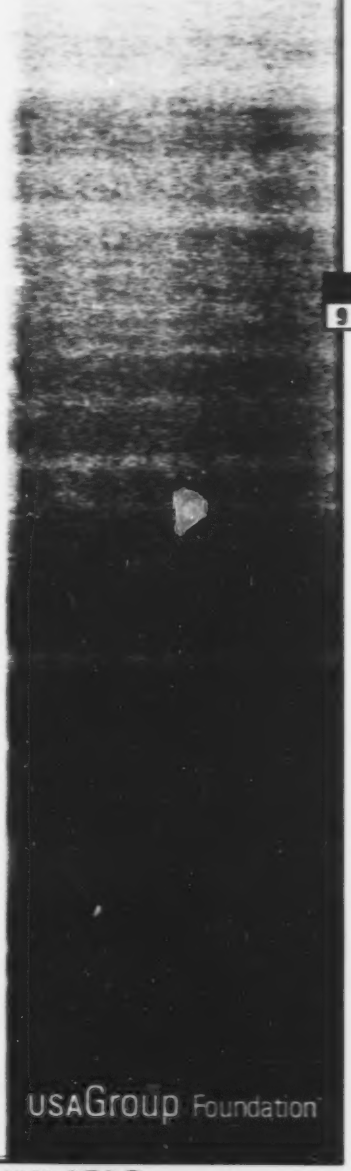
Formal classroom instruction prevailed throughout the second half of the 20th Century. By the 1960s, however, many colleges and universities had constructed circular, multi-tiered classrooms; free form, multi-tiered classrooms; and modularized classrooms in which walls could be easily moved to establish a variety of space configurations. Unfortunately, most of these innovative spaces reverted to traditional use (complete with fixed chairs or tables in standard rows), in large part because faculty received little training in how to use these new spaces and usually entered these classrooms with traditional attitudes about the teaching/learning process.

In addition to traditional libraries that house printed materials and offer quiet rooms for reading, a growing number of institutions operate learning centers for the storage, retrieval, and use of knowledge recorded in audio, visual, and computerized forms. Such learning centers typically involve students, faculty, and center personnel in activities that make teaching and learning interchangeable; in many cases, the centers also enable students to work at their own pace through programmed instructional materials that are accessed through computers.

During the 1970s and 1980s, some centers were equipped with dial-access systems and computer modems that allowed students living in dormitories or at home to retrieve materials from the resources center or library; the advent of the Internet and other database systems, however, largely has dated these earlier approaches.

In numerous instances, teaching and learning take place at campus locations that are not usually considered for formal undergraduate education (e.g., discussions in dormitory lounges, conversations on the campus green or under a tree, internships in the career counseling office,

In addition to traditional libraries ... a growing number of institutions operate learning centers.



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Service learning has gained substantial attention in recent years as a vehicle for off-campus education.

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apprenticeships in the development office, work-study programs in the registrar's office, a visit to the university theatre or art gallery, participation in intramural or sports activities). Most of the institutions we surveyed (93%) offer work-study courses in campus administrative offices, and they acknowledge that considerable learning takes place elsewhere on campus as well (this being tangibly evident in the continuing support for campus museums, galleries, and cultural events even among financially-strapped colleges and universities).

The very fact that these are not formally designated educational environments has helped to facilitate teaching and learning. In nontraditional settings both faculty and students tend to be more receptive to new experiences, and students can be less guarded, more relaxed and more willing to participate in informal discussions that have meaning. Such settings are also more unpredictable and less controlling than the formal classroom, and important "teachable moments" often occur. Of course, nontraditional campus space is being greatly supplemented by the virtual space found in the world of the Internet.

Off-Campus Learning

Space in the local community and throughout the world is used both as a classroom for formal instruction and as an environment for experiential learning. Most of the colleges and universities that responded to our Innovations Survey offer courses in off-campus classrooms, and 81 percent sponsor travel courses. For younger, full-time students who are inclined to be "theory-rich" but "experience-poor," the opportunity to get off-campus—even if to take a course in a corporate setting or a local community center—helps to open new perspectives and reduce "town-gown" isolation.

Many institutions also own or lease off-campus conference facilities for instructional purposes, and others use corporate training sites, local schools, and churchs for special programs. Mercy College in Dobbs Ferry, New York, for instance, offers a distance learning program in conjunction with the First Church of God and the Community Church of the Nazarene—interactive video conferencing stations having been installed in the churches.

Field sites historically have been a source of rich learning for both students and faculty; colleges and universities that focus on the environment and human ecology have made extensive use of field studies in such areas as geology and marine biology. Building on the experiences and successes of the Outward Bound program and Prescott College, a number of institutions offered courses during the 1970s and 1980s that featured the challenges of wilderness living.

At the same time, many colleges and universities have used off-campus field sites elsewhere in the country and in various locations around the globe. For example, over 160 institutions participate in the Washington Semester Program (Washington, DC), that involves students' observing and studying government in action by focusing on such issues as public policy, foreign policy and criminal justice.

Service learning has gained substantial attention in recent years as a vehicle for off-campus education. With one exception, all of the institutions completing our Innovations Survey say they are engaged in service learning, and BA I and II Colleges have sponsored it for ten years or more. (With one exception, all AA Colleges in our Survey also offer service learning.)

Research on this rapidly growing movement has shown service learning to be highly effective in integrating practical experience with theoretical learning. The fact that traditional institutions—especially BA I and II Colleges—have been engaged in service learning for many years strongly suggests that it is much more than just one among alternative undergraduate

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educational methods; in fact, service learning has become a mainstream pedagogy. In addition to campus-sponsored service learning initiatives, several national consortia (e.g., Campus Compact, Partnership for Service Learning, and Break-Away) coordinate inter-institutional programs, contract research, and advocate social learning as a viable educational experience. Several national associations—notably the Council of Independent Colleges—have also given considerable attention to this subject.

The strengths of service learning are that students directly and intimately engage in the ongoing problems of a given community; they learn by observing, testing, and participating directly in the discovery and implementation of solutions to complex social issues. Through such processes, colleges and universities are able to simultaneously link higher education and community concerns with the acquisition of cognitive skills and the forging of social awareness and moral development.

While not many colleges and universities yet avail themselves of the many possible sites for off-campus classrooms, virtually all now offer some form of off-campus, credit-generating experiences that expose students to realistic work and contemporary problems. This approach may seem new and innovative, especially when presented as service learning. However, it has a long and venerable history, having been spearheaded by the University of Cincinnati and Antioch College in the early part of the 20th century and mainstreamed since then by such institutions as Northeastern University. In more recent years, students have used off-campus, credit-generating experiences to receive pre-professional training, explore alternative careers, acquire work experience, conduct field-based research, and meet social obligations.

Traditionally, there is a specific place in which undergraduate education takes place—whether within or outside the classroom, on or off campus. Several interesting attempts over the past 40 years have made instructional space more flexible and responsive to diverse student needs. During the 1960s and 1970s, colleges and universities translated the American love affair with the automobile into new educational formats. Several institutions made use of mobile facilities, usually buses or trailers, to provide educational programs to student populations for whom the campus was not accessible—on occasion even offering classes en route to and from the college campus.

These mobile forms of education continue to hold promise, but little is being done in undergraduate education to act on them. Some institutions in our Innovations Survey (27%) bring the classroom to the learner, but only 6 percent teach courses to students en route through audio-visual equipment. It is safe to say that computer-based learning has diminished the frequency of mobile and en route learning, and it is doubtful there will be a resurgence of interest in it other than through the virtual classroom.

A question remains as to whether our conclusion fully applies to international mobile education. Several visionary colleges and universities moved their classrooms to the world's oceans during the 1970s and 1980s; this practice is most often identified with the "World Campus Afloat" program that originally was sponsored by Chapman College. While at sea, students typically selected a research project that was allied with such topics as water quality, navigation, boat building, and marine biology. Alternatively, they prepared for their stay in a foreign country by taking language lessons and studying its culture and history. As in the case of most other en route educational programs, however, the afloat programs have usually received less attention from students than

Computer-based learning has **diminished the frequency** of mobile and en route learning.

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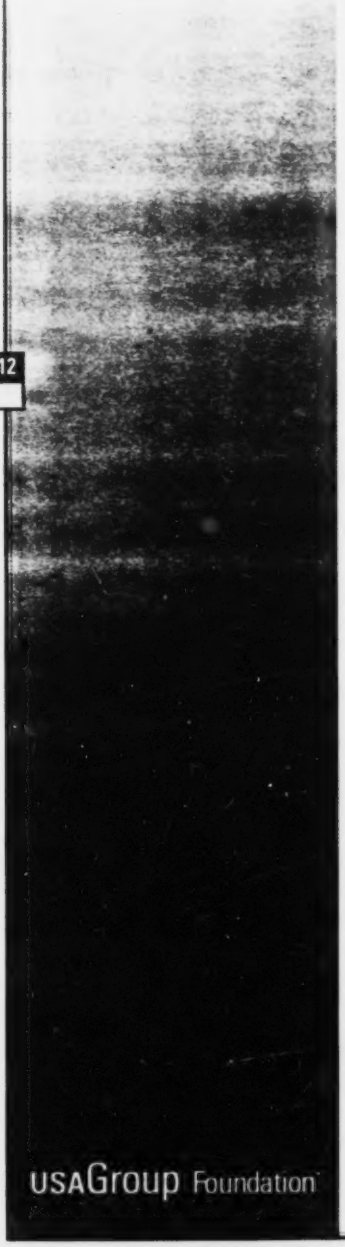
The use of standard textbooks in undergraduate education is declining.



from the press because the programs are costly and time-consuming.

Media-Based Learning

Instructional technologies have become very sophisticated since the 1950s, but the teaching challenges remain the same. Faculty and academic administrators are still learning how to effectively couple technology, people, and printed materials. In examining the new technologies, three media might potentially alter the ways in which instructional space is conceived: television, radio, and newspapers. However, only television has had much of an impact. A fourth technology, the computer, has profoundly changed the way that instruction and the use of space is viewed within colleges and universities.

To varying degrees, the institutions in our Innovations Survey include a full range of media in their course work. Nearly all (90%) use computers and many (79%) include television. However, only about half (52%) use newspapers, and even fewer (12%) have used radio. With one exception, all AA Colleges have been using television for over 11 years, while BA I and II Colleges report the use of television and newspapers less frequently than other institutions surveyed. Our Survey results strongly suggest that the coordinated use of multiple media by faculty now prevails, and the use of standard textbooks in undergraduate education is declining.

It is true that the media revolution in undergraduate education during much of the past half century centered on television, the nation's predominant mode of mass communications. For an increasing number of colleges and universities, television has become an effective tool to expand access for nontraditional student populations and to increase instructional program flexibility for traditional students.

Television is most frequently being used to achieve five purposes: delivering courses to the learner's office, home, or dormitory; increasing the number of students enrolled in on-campus courses; providing students the opportunity to receive instruction at times that are appropriate and convenient; giving students the opportunity to review and discuss instructional material; and accessing instructional material developed by other educational institutions or non-educational agencies.

Sophisticated use of remote-access television instruction expanded throughout the 1980s and has experienced exponential growth since then. Community antenna television and master antenna television are being used, as is closed-circuit educational television systems; programs are being beamed to regional campuses, technical centers, and secondary schools. Courses tend to be telecast to dispersed learning centers several evenings each week. Students interact with the instructor, and in many cases telephones and sophisticated auditory and visual equipment allow for highly effective student/faculty interactions.

Classroom-telephone-computer (CTC) networks also make instructional simulations available through microcomputers in remote classrooms, further enhancing the interactive potential of televised instruction. Modems and computers located in remote instructional sites can easily be used as terminals to access computers at a college or university by conference calls and closed-circuit facilities. Televised lectures can also enhance interactive discussions between instructor and students in remote locations.

Radio has been used by some institutions to reach nontraditional student populations. Between 1979 and 1981, the Fund for the Improvement of Post Secondary Education supported innovative uses of radio through its "Special Focus Program: Better Strategies for Educating Adults." National Public Radio also collaborated with West Virginia Wesleyan College on an instructional/audio program for adults

in Newark, New York City, Norfolk, and San Diego. Greenville Technical College was funded to implement Home College with the local library system for the purpose of providing educational radio services to blind, aged, disadvantaged, and disabled citizens. Currently, several institutions use their on-campus radio station to offer courses for credit; some courses are pre-recorded, and others are live and interactive.

Another medium, the newspaper, has been used sparingly by colleges and universities—despite the 50 percent of institutions in our Innovations Survey who say they use it for instructional purposes. Most of those use the occasional newspaper article on topics being addressed at the institution (usually special events, concerts, and lecture series). One university has offered a college level course via newspaper on the theme, "America and the Future of Man" (the University of California at San Diego). In 1973 more than 250 newspapers throughout the country printed weekly 1,400-word lectures prepared by nationally known experts; 180 participating colleges and universities gave course credit and, as of 1977, 30,000 people had earned credit through this University of California at San Diego program. Little else has been done in the use of newspapers for instructional purposes since that promising venture.

Television, radio, and newspapers potentially can bridge the gap between the campus and the community, but computers have already shattered spatial barriers and thrown the very notion of "campus" into question—particularly with the advent and exponential growth of the Internet. The computer and Internet revolution is impacting spatial barriers in at least five ways. First, computer-based technologies permit administrative transactions at a distance. Second, computers allow instruction to occur at a distance; transmission of material can occur through independent networks such as the Computer Assisted Lifelong Learning (CALL) Network of Thomas Edison University or commercial networks such as America Online. Yet a third function of computer-based instruction is to make educational opportunities available to those who are otherwise unable to attend a traditional campus program (e.g., full-time employees, rural residents, severely disabled, and incarcerated populations).

Computer-based distance learning also can bolster the economy of a geographical area, particularly if the region lacks educational resources. Computerized programs enable people to remain within and build their local community—as demonstrated in two programs, one begun by Charles Community College and another jointly offered by the New Mexico Rural Telephone Cooperative and Clovis Community College. The program at Charles enables working adults to work and learn in Maryland rather than having to move to Washington D.C. Similarly, the New Mexico initiative enables citizens to remain in their rural homes rather than having to move to larger communities for their education.

While computers provide numerous benefits, the most important seem to be associated with something called "asynchronous" learning. In many instances distance learning is *synchronous*, with students and instructors meeting at the same time but not in the same place. Synchronous technologies include video conferencing, audiographics (participants talk with each other while using computer peripherals), audio conferencing, radio (if live and interactive), television (live and interactive), virtual reality, text chat, and network meetings.

At other times distance learning is *asynchronous*, there being no requirements with regard to either time or space. Asynchronous technologies include

Distance
learning
is *asynchronous.*

13

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The most expansive use of space in the curriculum involves breaking barriers across national boundaries and continents.

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computer conferencing, the World Wide Web, CD-ROM, print correspondence (e.g., study guides, learning modules), radio (if recorded), audio-cassettes, video-cassettes, television (if recorded), e-mail, voice mail, facsimile, threaded conferencing (e.g., moderator's home page, web CT forums), and converged multi-media.

Learning in Temporary Settings

Temporary educational settings are among the most flexible and potentially richest uses of space in which students and faculty members engage in intensive learning. Typical and modest forms of simulated environments are the dining hall ("language table") and dormitory ("language house").

More complex and ambitious simulated environments are often found outside the formal curriculum. For example, many institutions sponsor annual festivals and homecoming celebrations in which students expend enormous energy, time, and often money in building booths, exhibits, floats, and even buildings. Although these kinds of activities are sometimes undervalued by faculty and administrators, students find they can be valuable sources of learning about needs assessment, problem solving, cooperative behavior, and principles of design.

Forty-five percent of the institutions in our Innovations Survey indicate they offer classes in special settings such as language tables and language dorms, and 81 percent regularly schedule special academic events (for example, festivals and colloquia). One institutional type, BA II Colleges, reports low use of special settings (44%), but others indicate much higher use (e.g., all BA I and MA I Colleges and Universities say they offer courses in special settings).

During the late 1960s and early 1970s, many attempts were made to create colleges on a simulated or temporary basis ("teach-ins," "free universities"). While some of these temporary educational simulations primarily served as focal points for radical educational and political engagement, others acted as community centers to match people with common interests and resources. One of the most unusual examples of planned temporary learning simulations was the "College One" program sponsored by the Council of Independent Colleges during the summers of 1978 and 1979 at Bowdoin College. Two month-long programs involved faculty members, their families, and students from small liberal arts colleges across the country in focusing on the theme, "Passages: Planning for Work, Leisure, and Service." The learning of faculty was considered as important as the learning of students, for faculty used College One to explore new teaching methods, different relationships with students, and even new modes of integrating work and family.

International Learning

Perhaps the most expansive use of space in the curriculum involves breaking barriers across national boundaries and continents. Increasingly, international education is considered a central component of any undergraduate curriculum and, in many instances, is the heart of the curriculum of institutions that seek to prepare students for emerging global interdependence.

International education has taken form at six different levels since the 1950s: immigrants take courses to prepare for living and American citizenship (level one); international students take courses on American college and university campuses (level two); American students are exposed to other societies and cultures through curricular offerings and international travel-study programs (level three); groups of students from other countries come to the United States to study in programs specifically designed for them (level four); American colleges and universities conduct

courses and even establish campuses in foreign countries (level five); and American and foreign students take courses together in an integrated international program of study (level six).

Typically, international education is driven by three major factors. One is that colleges and universities discovered early on that international students are a source of significant revenues. Indeed, extensive experience over the years has demonstrated that international students are willing to pay high fees to receive a degree from an American institution—despite "love-hate" attitudes of many foreign nationals about American values and power. The second motivating reason behind the growth of international education in American colleges and universities is the desirability of having students learn about other cultures and social systems. Particularly through the use of area studies programs and "twinning" programs (American and foreign institutions sharing students, faculty, and curricula), students have been able to learn enough about another culture—including its language and customs—to be able to work in the culture or at least provide expertise related to it.

While often unacknowledged, a third reason may be the most important: international education enhances students' capacity to think in critical, reflective terms, and cope with a turbulent world. Many research projects and international education programs have demonstrated that an international experience is probably the best way to encourage students to think in relativistic terms and to come to a new appreciation of the notion of "truth" existing within a specific social and cultural context.

Conversely, several factors have contributed to the failure of international education to command even more attention in American undergraduate education. In addition to the parochial and isolationist tendencies found throughout the United States (e.g., as manifest in the inability of most Americans to converse in a language other than English), interest in international learning often is in direct proportion to the safety of international travel; in times of global conflict, international education wanes. Currently, most international unrest is located in areas that have not been traditionally attractive to American students; on the other hand, Western Europe, Japan, and some parts of Latin America offer the perception of safety.

As American education is still perceived to be among the best in the world, international students continue to be drawn to the United States in large numbers. For example, 75 percent of the institutions completing our Innovations Survey indicate they teach courses to international students in English as Second Language (levels one and two). Other levels of international education are also alive and well; 92 percent of the surveyed institutions offer their students study-abroad programs (levels three and five), and 35 percent provide integrated programs that bring American and international students together (level six).

Nearly all the BA I and II Colleges report having sponsored international education for 25 years or more. While international education has become a mainstay of the surveyed institutions, half say they have integrated national and international students. In the BA I and II Colleges, one in each group reports having an integrated international program; in the MA I, MA II, DI and DII groups, nearly half report offering them. The fact that most of the integrated programs have been developed within the past decade suggests that this model is gaining momentum.

Resources

Historically, the extent and quality of resources have been the primary criteria used by colleges and universities to project image and establish reputation.

International education enhances students' capacity to think in critical, reflective terms, and cope with a turbulent world.

15

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Colleges and universities increasingly are relying on part-time faculty members to carry the burden of undergraduate instruction.

Institutions have been considered "excellent" if they possess a distinguished faculty, large library holdings, spacious and beautiful buildings, ample laboratory and studio equipment, and well-manicured grounds.

Without question, such "input" measures of quality continue to be highly valued in American higher education. However, there are clear signs that measures of "output" (e.g., number of graduates, mean income several years after graduation, percentage of students passing licensing exams) and, more recently, "value-added" measures (differences that institutions actually make in the lives of students with regard to specific skills, knowledge, and attitudes) have grown in influence. The two newer measures of quality require ample resources and the effective use of time, space, instructional methods, thoughtful planning, the monitoring of curricula, and the identification of compelling and measurable educational outcomes. These measures of quality also require the creative use of resources, especially if the institution is to simultaneously provide access while seeking to achieve quality. This is a tall order, indeed!

Faculty

First and foremost among the resources needed for an institution to achieve its teaching and learning mission are the quality, resourcefulness, and vigor of its faculty. In 1950 the primary instructional resource of any college or university was its full-time, residential faculty. This continues to be the case 50 years later, although the status of this primary resource is in more flux than any other. All of the colleges and universities that completed our Innovations Survey have full-time faculty members, and all use faculty as advisors, tutors, and mentors in independent studies. All of these institutions also make extensive use of part-time faculty, including 72 percent who report using faculty part-time from other institutions.

The changes that are occurring in the use of human resources other than full-time, residential faculty have broad-based implications. Most teaching methods require the active participation of fully engaged faculty and supporting academic services (e.g., academic advising, career counseling, mentoring). Team teaching, for instance, while still not widespread, is found at virtually every college and university we surveyed. It is successfully undertaken only when participating faculty can give adequate time and focus to the effort; this is true whether faculty are from the same institution or are drawn from other institutions through consortia arrangements (a once promising innovation that is sporadically practiced today).

Nevertheless, colleges and universities increasingly are relying on part-time faculty members to carry the burden of undergraduate instruction. We believe this to be one of the most widespread and one of the least acknowledged "innovations" in American higher education over the past 50 years. The principal reason for the adoption of this practice is obvious: cost-savings through reduced faculty salaries and minimal fringe benefits. Part-time faculty also can be dismissed if sufficient enrollment doesn't materialize, and such flexibility enables academic administrators to assume greater control of on-going educational operations than is typically the case with full-time faculty.

On the positive side, part-time faculty members tend to bring a high level of diversity, a good combination of theory and practical work experience, enthusiasm and willingness to innovate, and a link with the local community. They also mostly tend to teach part-time commuting students—the predominant student cohort at many colleges and universities.

While there are often serious limitations with this arrangement (e.g., availability mostly limited to evenings and

weekends, fatigue and other distractions in personal life, lack of meaningful connection to the institution), both part-time faculty and students tend to be highly motivated. The part-time student typically enrolls in course work because of specific career interests and needs rather than parental expectations, and many part-time faculty similarly have alternative ways of making a living but love teaching. Most often, part-time faculty and students initially can start their relationship with a strong interest in teaching and learning; given a supportive environment and adequate resources, they can together craft a rich learning environment that more than makes up for the absence of supplemental extra-curricular experiences.

We cannot conclude this section without making several observations about the role and use of graduate students as teaching assistants. While graduate teaching assistants (GTAs) were frequently used prior to 1950, they became much more prominent during the second half of the century. Forty-eight percent of the colleges and universities in our Innovations Survey hire teaching assistants, and those most likely to employ them (research universities and comprehensive universities with graduate programs) are underrepresented in our sample. It is safe to say that GTAs are not only a commonplace supplement to the full-time faculty; they do much of the undergraduate teaching at research universities.

The limitations of this arrangement have been obvious for many years. GTAs are underpaid, are primarily motivated by their own degree aspirations rather than the learning goals of their undergraduate charges, and are not infrequently left to their own devices in learning how to teach (although we note some recent and praiseworthy exceptions in Chapter Five). If there is a long-standing scandal in the use of human resources in American higher education, it is the planned dependency of most research universities on GTAs to provide the lion's share of undergraduate instruction.

Non-Instructional Staff

If existing notions are reframed about who is qualified to teach and which resources offer the richest learning for students, the horizon of curricular resources broadens considerably. This reality requires that colleges and universities look beyond traditional faculty ranks. Fortunately, such resources are abundant. Non-instructional personnel can be supervisors for student interns and work-study participants, such as those extensively used for many years at Berea College. An assistant dean can be a mentor to an undergraduate major in public administration, and an accountant in the business office can instruct first-year business students about the way books are kept at the institution. It is not uncommon for the president of a college or university, in keeping with a three-century-old tradition, to offer a seminar on leadership or contemporary social values. With but one exception, all colleges and universities participating in our Innovations Survey use non-instructional staff as teachers.

To expand perspectives and make expertise available to students, some institutions also have made extensive use of resource people from the surrounding community. For example, during the 1970s, community leaders taught 30 percent of the seminars in the Tufts University Experimental College. Today, most urban institutions supplement their core faculty with community resource people who work elsewhere full- or part-time. At more traditional colleges that are mainly dedicated to young adults, community resource people are sometimes employed to assist students in academic program planning and the evaluation of competencies (e.g., Alverno College).

Colleges and universities look beyond traditional faculty ranks.

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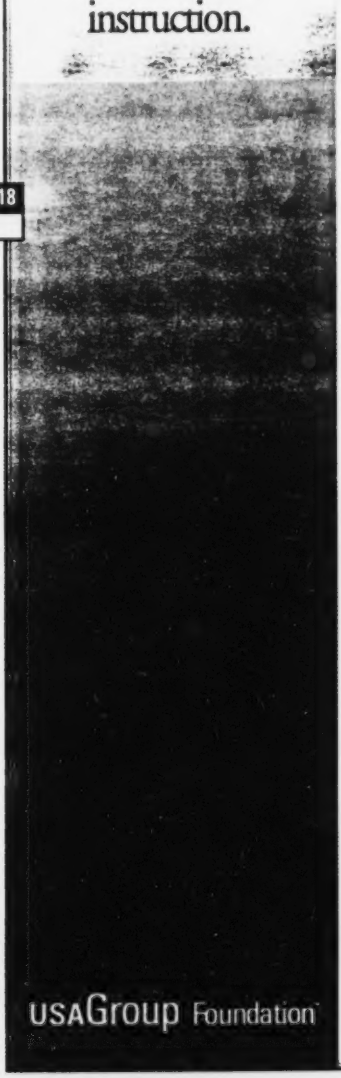
Another way that colleges and universities are using **nontraditional** instructional resources is student peer instruction.



Eighty-three percent of our surveyed institutions use community people as resources, and 69 percent use alumni for career planning and the teaching of case studies. The BA II Colleges use community members and, with one exception, alumni as co-teachers; all MA I and II Colleges and Universities use community members as co-teachers.

The participation of external practitioners in institutions attests to the growing importance of practical, hands-on education. The entrance of increasing numbers of nontraditional adults also has stimulated the need to expand employment and volunteer-related experiential learning beyond the campus. Cooperative designs, involving consortia of colleges and universities, national associations, corporations and human service organizations, currently link institutions with local communities and tend to include both faculty and non-faculty professional adjuncts in students learning networks.

Students can also be resources to one another. Interest in collaborative learning among students has mushroomed in recent years. Faculty who encourage peer learning often need to provide little else in the way of educational resources because, as Alexander Astin has observed, "the amount of interaction among peers has far-reaching effects on nearly all areas of student learning, [especially] leadership development, overall academic development, self-reported growth in problem-solving skills, critical thinking, and cultural awareness."[4] In collaborative learning teachers become catalysts. They can establish an atmosphere of engagement for their students by organizing them into groups, and group discourse often produces new insights and knowledge from course materials.

Another way that colleges and universities are using nontraditional instructional resources is student peer instruction. With one exception, all of the surveyed colleges and universities report use of this resource. Some institutions use peer tutors—gifted or advanced students placed in a superordinate teaching role with other students. An alternative approach (called peer teaching-learning), in contrast, "places students at the same level of academic development in situations in which they must work together, teach one another, and learn from each other—constantly changing roles as teachers and learners."[5]

A final stratagem concerns the involvement of family and friends as instructional resources. While 23 percent of the surveyed colleges and universities report using family and friends as instructional resources, their involvement is usually informal and more often serendipitous than planned. Nevertheless, there are good reasons to believe such resources can be a source of inspiration and encouragement, personal and professional insight, knowledge and skills. The challenge is to integrate these resources into a formal educational program (e.g., inviting entire families to join in an institution-sponsored family weekend, or couples to participate in a "Great Books" program). Circles of friends can similarly engage in shared learning by reading and discussing the same books under the sponsorship of a specific college or university (something that Oprah Winfrey is using with great success with bookstores throughout the United States). Undergraduate programs that build on existing interpersonal relationships may soon become more prevalent as colleges and universities seek new ways to address the needs of the adult learner and commuter student.

Materials and Equipment

Colleges and universities have benefited over the past fifty years from an expanded base of physical resources that are being harnessed to strengthen teaching and learning. The most notable of these technologies are print, non-print/elec-

tronic, non-print/media, and computers. Whether speaking of library holdings or written materials purchased by students, the "book" continues to be the primary material resource; of course, this genre also includes journals, magazines, newspapers, packaged instructional programs, simulations, and games. Results from our Innovations Survey suggest that virtually all colleges and universities use formal print (books and articles). They also tend to use informal print (newspapers and journals), documents, exhibits, and archival material. Unfortunately, all of these material resources are becoming extraordinarily expensive, and even the most highly endowed universities cannot meet every need (although library consortia and other cooperative arrangements are helping to ease the burden).

The printing industry has created new technologies that threaten to make the traditional textbook obsolete. Unfortunately, one practice—transposing textbooks onto computers—does a disservice to the learner because the strengths of the electronic medium are not fully exploited (e.g., interactive capability, ability to search for information in worldwide digital libraries, capacity to present information through sound, video, and animation). Perhaps most telling is Siegal and Sousa's observation that "by its very nature as a static, passive medium, the printed textbook is unable to fulfill its instructional goals…textbooks are not being sufficiently improved because they cannot be improved sufficiently."[6]

Libraries have not been exempt from the electronic revolution and often take the lead in this regard. Their involvement is evident in the automation of print-based technologies and expansion into non-print media (e.g., audio-visual materials such as records, cassettes, audio CDs, videotapes, and laser discs; microfiche and microform; CD-ROM and software collections). However, the accumulation of new technologies and non-print media beg important questions that challenge some assumptions about undergraduate education and the teaching and learning process itself: What is the appropriate role of the faculty member? How do small colleges and universities with limited resources afford the initial costs and ongoing maintenance costs of these high powered, technologically driven instructional tools? Are consortia (such as the Online Computer Library Center) the answer—as they are with the sharing of printed materials? Will these new technologies force all but the wealthy and largest institutions to the margins of educational excellence? How deeply will these new technologies affect the dominant collegial culture of our institutions of higher learning?

While books and other printed media continue to be the primary instructional materials for most colleges and universities, they are being supplemented (and replaced in part) by electronic media. All of the surveyed colleges and universities indicate they now make extensive use of these new "digitalized" instructional resources. Various other non-print media, such as flip charts, white boards, and overhead projectors are more mundane than virtual textbooks, but they are playing a central role and are themselves being modified for use in conjunction with new electronic media.

Without question, the computer's impact on American undergraduate education has exceeded any other technology to emerge over the past 50 years. The computer currently serves at least six major functions in instructional settings: as a vehicle for storing and processing information; as a subject of academic study in its own right; as a tool to convey and test for comprehension of new instructional material; as a way to simulate complex physical or social systems; as a medium for creating high quality graphics, art, and animation; and as an efficient and

The computer's impact on American undergraduate education has exceeded any other technology to emerge over the past 50 years.

19

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The computer revolution requires that the faculty member gain new competencies.

highly effective convenience for faculty and student research and scholarship.

During the 1980s, the microcomputer allowed academia to crunch numbers and perform text processing more efficiently. Today, it is clear that the real revolution lies in the computer's capacity to communicate through many modalities (words, numbers, sounds, graphs, and pictures). Moreover, multi-modal communication is simultaneous, instantaneous, interactive, and easily manipulated, depending on the application. The use of the computer in the classroom is not, in and of itself, the key to a more innovative or effective teaching system. Rather, the success of any application has more to do with melding the technology with student abilities, curricular goals, and faculty members' willingness to become coaches and mentors in guiding students to analyze and solve problems.

Finally, the computer revolution requires that the faculty member gain new competencies. As lecturer, a professor has control of the information transmitted; as coach, she must respond to queries that may not be in her realm of expertise. The Internet now provides both faculty and students information about the latest developments in virtually any field of study. The Internet also has democratized the classroom, which means that faculty no longer have exclusive access to knowledge. Thus, faculty must become willing learners alongside their students. The challenge is significant and irreversible!

Chapter Three:
Undergraduate Teaching and Learning

A curriculum comes alive and influences the work of both faculty and students in the daily application of specific instructional procedures and in the definition and application of clear educational outcomes. Patricia Cross has identified outcomes in terms of three levels of curriculum: the curriculum as described in the college catalogue, the curriculum as taught by the faculty, and the curriculum as learned by the student. This dimension of collegiate curriculum—teaching and learning—crosses all three levels. While time (calendar and clock), space, resources, and organization all bear indirectly on the curriculum that students learn, instruction impacts directly and immediately on learning that occurs within and outside the formal classroom.

A Tripartite Model

Any instructional event involves an interaction among the student learner, a body of content or an experience, and a faculty member who is expected to mediate and assist in the student's acquisition of content or experience. In her role, the faculty member usually chooses to emphasize either subject matter or the student as learner. Faculty who attend primarily to content most often select methods that convey knowledge in a clear and compelling manner, whereas faculty who focus more on the learner normally select methods that give the learner considerable control over the nature and format of the material they are learning.

In addition to content-centered and student-centered instruction, an interaction-centered approach to instruction emphasizes the interplay of content, student, and faculty member. Instructional methods that are most closely aligned with this third approach create settings in which there is an abundance of rich stimuli and ample opportunity for students to interact with them.

Sadly, growing pressures by accrediting agencies and state legislatures to have colleges and universities identify clear student learning outcomes have produced the unintended consequence of emphasizing content-based instruction at the expense of both student-centered and interactive-centered methods. Paradoxically, the so-called innovative emphases on specific learning outcomes may actually discourage other innovations and diminish student learning—in that many students thrive in educational environments they can influence, and particularly ones that involve active learning and wide-ranging interactions with faculty and other students.

Interaction-based and student-based methods convey more of a contemporary flavor than do content-based methods. Yet, all three approaches are deeply rooted in the history of both western and eastern higher education. Content-based approaches are, in essence, variations on the traditional lecture, while student-centered methods are inevitably variants on the independent tutor. Interaction-centered methods, in turn, tend toward the dynamics of the seminar for inspiration.

Content-Centered Instruction

Content-centered instruction is the core of contemporary undergraduate education. In every course of study there is a body of knowledge that must be conveyed clearly and effectively. We briefly describe several content-based methods that can be used to accomplish this task.

Innovative emphases on specific learning outcomes may actually discourage other innovations and diminish student learning.

Programmed instruction is useful and appropriate in several settings and for several purposes.

Lecture

Conveying a body of knowledge is most often accomplished through the lecture format. Not surprising, all of the colleges and universities completing our Innovations Survey indicate that lecturing is widespread. Traditionally, lectures were valued because they could substitute for books, when books were unavailable or very expensive. More recently, lectures have substituted for reading, partly because lectures can be more easily updated than textbooks.

While the Internet and other rapid information transmission systems speed the means by which learners can gain cutting-edge ideas, lecturing still plays an important role. Lectures are suitable when information to be conveyed is not contained in a book, set of slides, movie, videotape, or other resources. In addition, an effective lecture can establish a knowledge base, set the tone for student discussion, acquaint students with a particular way of solving a problem, heighten student interest in a particular topic, and serve as a springboard for student independent work.

Lecturing is also an efficient and effective vehicle for lower level cognitive development (knowledge and comprehension); the student passively receives information and observes the instructor's use of higher order cognition, which sets the stage for other forms of cognitive development through more engaging instructional means.

While these pedagogical reasons for using lectures are fitting and compelling, they are not what drive most faculty use of this method. Faculty members lecture because this is the primary method by which they were taught—and is therefore most familiar. Lecturing usually requires less preparation time than most other methods (especially if the course has been taught before), and it can be ego gratifying for faculty members because they are able to exhibit expertise and savor the approval and admiration of students. Academic administrators also like lecturing—for it is a relatively low-cost method of instruction. (Zemsky, Massy, and Oedel suggest that class size can be expanded by at least eight percent when lecturing is the primary mode of instruction.) The limitations of lecturing are well known: It is not a particularly efficient mode of knowledge transfer. It most often involves a one-way communication process. It is oral in nature, making it inappropriate for students who learn primarily through visual or kinesthetic means of instruction.

Question-and-Answer Session

Question-and-answer sessions are the most common complements to the classroom lecture—along with demonstrations and assigned reading. All of the surveyed institutions indicate their faculty frequently use informal classroom discussions along with lectures. Many faculty members try to overcome the problems of one-way communication by interspersing lectures with question-and-answer sessions. Alternatively, faculty may also pause periodically to entertain questions. The entire process can be reversed through "recitations," in which the faculty member asks questions of students and students must provide answers (factual information or opinion). Our Innovations Survey indicates that student presentations in the undergraduate classroom are very common.

Programmed Instruction

Programmed instruction is the first of the so-called "innovations" that we discuss in this chapter. Programmed instruction has been used to overcome feedback problems often associated with lecturing and assigned reading; it provides immediate reinforcement and ensures that a student master one set of instructional materials before proceeding to the next. Like many other nontraditional methods,

programmed instruction was widely valued by its early advocates as a panacea to the instructional ills of the academic world; as with many other nontraditional methods, however, programmed instruction has not been enthusiastically embraced outside courses taught by ardent behavioral psychologists and biological scientists. The reasons are many.

A programmed text interrupts information flow, so it is hard to build a concept sequentially. Such texts are often frustrating and uninteresting to students after initial interest in the "gaming" quality of the text has waned. Also, very few programmed texts are available outside the behavioral sciences, and composing their own text is very labor-intensive for faculty. Finally, programmed texts cannot easily test for appreciation, synthesis, or other higher-order learning.

In the final analysis, programmed instruction is useful and appropriate in several settings and for several purposes. First, a short programmed text can help students who must learn and retain sets of definitions, numbers, locations, and other low-level cognitive tasks. Second, programmed instruction is appropriate when an instructor is not available. Third, programmed instruction can be used successfully when conveyed and monitored by a computer rather than printed textbooks. Indeed, it is computer-assisted instruction that has kept programmed instruction alive during the past 20 years.

Media-Based Instruction

As with programmed instruction, many advocates during the 1950s were convinced that audiovisual technologies (now called by many other names, including "media-based" technologies) were going to completely change teaching and learning. By the 1960s, when significant dollars were available for instruction, large amounts of money were spent on movie projectors, television monitors, and 35-mm slide projectors. Much of this money was wasted, however, because few resources were dedicated to helping faculty learn how to use media technologies in their classrooms. Nevertheless, as of 1999, 73 percent of the institutions completing our Innovations Survey indicate that their faculty frequently use television, audiovisual presentations, film, and video. Television has not taken hold in liberal arts colleges, however; only one of the BA I Colleges and a third of the BA II Colleges report faculty use of the medium. This low proportion of use stands in sharp contrast to the MA I, D I and D II Colleges and Universities, which all say their faculty make extensive use of television.

Despite the drawbacks and disappointments (particularly in liberal arts colleges), faculty have tended to find audiovisual technologies to be of value in several respects. Media-based instruction provides stimulus variations (visual rather than merely auditory); these technologies provide a means to teach students who learn best through visual and kinesthetic modalities.

Professionally prepared media presentations are usually more interesting and transmit more information in a shorter time than does a lecture. Today, with the introduction of Power Point and other computer-generated presentation tools, faculty can offer professional-quality presentations without outside assistance. Virtually all of the surveyed institutions indicate that many of their faculty currently use computer-generated images in their classrooms. Media-based materials also can be made available to students on an individualized basis. And, the faculty member can be absent when a movie, slide show, or videotape is being played—freeing up time for other activities, such as tutoring, advising, and course preparation.

Professionally prepared media presentations are usually more interesting and transmit more information in a shorter time than a lecture.

23

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Various forms of visualization represent perhaps the most radical of the content-based innovations of the 20th Century classroom.

Audio-Tutorial Laboratory

If a faculty member doesn't have to be present during a media-based presentation, students need not always be assembled at the same time and place to receive instruction. The audio tutorial method allows for maximum individualization of time and duration of instruction, and it gives students access to multiple media equipment and instructional materials. Usually, a central study-laboratory permits students to view films, inspect demonstration projects, conduct simple experiments, and work through other instructional materials.

Most audio tutorial labs are now self-paced, with students repeatedly taking examinations to demonstrate competence. A wide variety of topics have been taught in audio tutorial labs, most extensively in foreign languages, biology, chemistry, and physiology. While most colleges and universities have lost interest (or never expressed interest in the first place) in audio tutorial labs, virtually all of our surveyed institutions say their faculty make fairly frequent use of some type of campus media laboratory.

Personalized System of Instruction

Just as the audio tutorial laboratory is a logical extension of media-based instruction, so, too, is the Personalized System of Instruction (PSI) a logical extension of programmed instruction. Two concepts underlie PSI and its various derivations: mastery and self-paced learning. Mastery learning begins with the assumption that if certain course instructional units are prerequisite to other units, the student should master this material before moving to the next unit. Mastery is typically set at a rather high level (90-95%), and students are usually given ample time and assistance when studying for tests.

The second concept, self-pacing, builds on the assumption that people learn in different ways and at different rates. Some students learn best when covering a large body of material in a relatively short period of time (block learning), while others learn best when new material is acquired in small chunks over a relatively long time (spaced learning).

PSI offers a number of advantages over other content-centered methods and, as a result, experienced a brief period of popularity during the 1960s and 1970s. The most important advantage concerns a shift in the role of the instructor, who can work more directly and closely with students. The second advantage is flexibility and individualization for students. A third is the opportunity for a PSI instructor to focus attention on students who find a course difficult.

A major disadvantage of PSI, however, is its incompatibility with the registration, crediting, and scheduling procedures of most colleges and universities. Another is the assignment of course grades; if a student masters all course modules, the result should be an "A." Alternatively, time can be used as a grading criterion, with students finishing first receiving an "A," those finishing second a "B," and so on.

Both grading procedures seem to defeat the purpose and spirit of PSI. Another major disadvantage of PSI is that some students react against the seeming mechanistic quality of the course design, and others lack sufficient self-discipline to manage a self-paced course without procrastination.

Visualization

Various forms of visualization represent perhaps the most radical of the content-based innovations of the 20th Century classroom. Among the ingredients of a particularly effective lecture is the instructor's ability to convey or elicit vivid visual images. Visualization can be conceived as slowed-down lecturing, where the faculty member uses carefully chosen stories, images, illustrations, tone of voice, pauses, and gestures. This "directed" or

"guided" visualization technique has been used in a variety of disciplines. For example, three-dimensional models in the sciences can sometimes be conveyed more effectively through visualization than through drawings on a two-dimensional blackboard. A technique called "suggestopedia," first used in Bulgaria and more recently by American educators in teaching German, French, and Spanish, relies heavily on visualization, as well as rhyming schemes and stress-reduction.

Student-Centered Instruction

During the 1970s there was widespread growth in the number of colleges and universities that gave students an opportunity to design their own programs of study—in consultation with faculty advisers and within the framework of the institutions' educational intentions. In many instances students were required to fulfill certain course requirements or graduation prerequisites, but in others they were given considerable latitude to design their own plan of study.

By the 1980s most institutions had begun to offer some form of individualized instruction that was responsive to diverse student needs, interests, and competencies. All of those completing our Innovations Survey report extensive use of in-person tutoring. Surprisingly, 68 percent of the surveyed institutions report some form of distance tutorials via computer, telephone, and/or television. All of the D I, D II, and MA I Colleges and Universities, 83 percent of the MA II Colleges and Universities, and half the BA I Colleges offer distance tutorials.

Each of the student-centered methods we examine in this section begins and ends with student learning needs. A student meets periodically with a faculty member, graduate assistant, or tutor to clarify learning objectives, identify appropriate educational resources, and receive an assessment of how well objectives are being met. The faculty member, graduate assistant, or tutor tailors his role, expectations, and resources to the individual student; he also responds to increasingly clear yet often shifting student-learning objectives.

Tutorial/Independent Study

Both the tutorial and independent study methods start with a "contracting" phase, during which the faculty member assesses and critiques the student's interests, needs, and written or oral plans for the tutorial or independent study. Tutorials typically differ from independent study programs in four important ways.

- First, tutorials focus on the acquisition of a body of knowledge or skills, whereas independent study programs usually involve the production of a written or oral report, term paper, essay, journal, or research project. An independent study frequently increases the learner's freedom, while the instructor usually controls the tutorial.
- Second, tutorials usually involve close and regular faculty monitoring of student progress, while independent study programs generally are often supervised less intensively and even sporadically.
- Third, tutorials generally require the faculty member or tutor to serve as the primary student resource. This method is student-based in that the tutor tailors the approach and presentation to the student's immediate and personal needs. However, during the tutorial sessions, the faculty member or tutor may resemble a content-based instructor by lecturing, questioning, answering questions, and testing for specific content. By contrast, the independent study method more closely resembles interaction-centered instruction in that the instructor

68 percent of the **surveyed institutions** report some form of distance tutorials.

25

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Prior learning assessment (PLA) is the source of considerable debate.

becomes a co-learner rather than a content expert.

- Fourth, tutorials and independent study serve difference purposes. Tutorials have been used in recent years primarily to assist students who are having problems in completing academic work, while independent studies are more frequently pursued by students who have exhibited self-discipline and motivation and have achieved excellent academic records.

Assessment of Prior Learning

Prior learning assessment (PLA) is the source of considerable debate within colleges and universities and regional accrediting bodies. Some of the first attempts to assess and credit prior learning were done with gifted entering freshmen under the age of 18 (e.g., the University of Chicago, where entering students were able to place-out of some courses by passing entrance examinations). Today, many colleges and universities routinely use the College-Level Examination Program (CLEP). In other instances regional, state, and faculty-designed examinations are used in lieu of national exams.

Under the inspiring leadership of Morris Keaton and the Council of Adult and Experiential Learning (CAEL), PLA moved far beyond standard examinations. It now involves preparation of portfolios, reflections on one's life experiences, and identification of new learning and career goals. The increased enrollment of adult students, who have learned much outside the formal educational system, would seem to make PLA a particularly valuable tool.

Yet in the United States, there has been only limited use of PLA by most institutions. In part this is because PLA originally was used primarily with young students, who had limited life experiences. As a result, the debate has often centered on the indiscriminate awarding of credit (primarily to young students) by colleges and universities that are seen as economically driven rather than educationally motivated. Today, with the emergence of readily accessible educational technologies and a growing commitment of many adults to lifelong learning, the debates about PLA may soon become dated.

Learning Contract

The learning contract has slowly, but consistently, gained broad-based acceptance over the past 50 years in American undergraduate education. Eighty-five percent of the surveyed institutions report their faculty offer contracted-learning. This method has certain advantages. It enables a faculty member and student to explore past learning, educational goals, the extent to which the gap between current levels of learning or competencies and desired levels can be reduced or eliminated, the resources available to the student for achieving the desired levels, and the means by which the student will progress toward the desired levels. Faculty members who enter into learning contracts usually help students evaluate educational resources and overall educational experiences contained in the contract.

Field Placement/Internship

Learning contracts can also provide undergraduate students with linkages to resources within and outside the campus through field placements and internships, two other student-centered methods. The particular benefit of field placements and internships is that the student has a single, intensive educational experience that provides continuity and a unified sense of accomplishment—much as a successfully completed independent study project does. Furthermore, field education can yield impressive psychomotor and affective development within students.

In aiding a student through field placement, a faculty member often has to learn new skills, such as anticipating and

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tolerating unpredictable events. The faculty member must also be able to assist students in extracting new insights from even the most difficult situations. Just as the interaction-based instructor will use the case method to show students how to solve complex problems, so also will the field-placement instructor help students to confront complex situations through the use of problem-solving and interpersonal skills.

Student-Generated Course

Student-generated courses usually take one of three forms: those initiated by the student but led by a faculty member, those initiated by a faculty member but led by the student, and those initiated and led by students. The first of these approaches was offered by many colleges and universities during the late 1960s and early 1970s. Courses initiated by faculty members but taught by students have been sponsored by undergraduate institutions for many years; they provide exceptional students an opportunity to meet a challenging teaching assignment, which tends to increase their interest in the area of knowledge being acquired. The third type of student-generated course grew out of the late 1960s, when students both initiated and taught courses and even entire academic programs (e.g., the so-called "free universities"). Little remains of this brief, but remarkable, foray into self-initiated and self-organized educational programs.

Interaction-Centered Instruction

Many educators have written about "teachable" moments, and they identify these as occasions when students are open to new learning either because of the death of a deeply held belief or failure to perform an important task. The key is that the learning challenge must be balanced by sufficient support if a "teachable" moment is to occur. The primary purpose of an interactive method of instruction is to create conditions that sustain the fragile relationship between challenge and support. When challenge is too great and support too low, the learner is likely to retreat. Conversely, excessive support and little challenge yield conformation and resistance to change. While low challenge and low support produce stasis, high challenge matched with high support can generate significant growth and learning. Interaction-centered instruction is difficult to conduct precisely because of this need to strike a delicate balance between challenge and support, and because of the need for faculty to quickly identify and build on the fleeting teachable moments that rich interactive instruction generates.

Seminar

Along with lectures and tutorials, seminars form the historical basis for contemporary college teaching. Most other interaction-based instructional methods derive from the seminar format, at least for instruction in the humanities. The seminar is found on virtually every American college and university campus—according to the results of our Innovations Survey. An effective seminar provides an environment in which a faculty member and students can openly interact to discuss issues, problems, and perspectives that do not lend themselves to easy resolution. Thus, an effective discussion-based seminar requires and encourages upper levels of cognitive development and all levels of affective development.

A seminar is an ineffective method, however, when a faculty member uses it as a forum for lower-level cognitive development and, in particular, the dissemination of information or promotion of particular perspectives; the content-based methods described earlier (e.g., lectures, audio tutorial labs, PSI) are more appropriate for such objectives. The seminar format is also

The seminar is found on virtually every American college and university campus.

27

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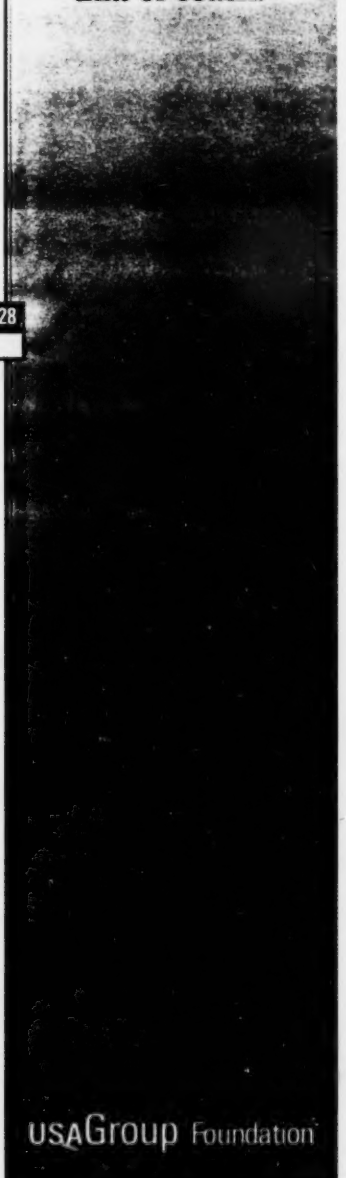
The faculty member's role in the studio, shop, or laboratory is that of coach.



ineffective when a faculty member wants to encourage student control of the instructional process, or when discussion becomes competitive or contentious; student control is more successfully incorporated in individualized methods that are student-centered.

Buzz Group/Learning Cell

A large class, or one structured around lectures and question-and-answer sessions, need not exclude interaction-based methods. Virtually all faculty, according to the surveyed institutions, use some in-class discussion groups. For the sake of perspective, we need to be reminded that interactive education—and particularly the kind of classroom discussion that has been commonplace in both European and American colleges and universities—remains an innovation in many other national educational systems. For example, students from Japan and Italy often comment on how unusual it is to have opportunities for classroom interaction with their teachers and other students.

Respondents to our Innovations Survey report that classroom discussions mostly tend to be problem-based rather than broadly thematic or reportorial (actually a form of group recitation). Two in-class discussion methods are especially effective in the problem-focused domain. The first method, buzz groups (otherwise known as reaction groups or break-out groups), consists of 5-10 minute small-group discussions within the classroom to explore a specific problem. This small group format provides students an opportunity to present their opinions to peers, to clarify their positions, and even to attempt to reach consensus with other group members on the topic under consideration.

The second method, called the learning cell, also relies heavily on peer interaction. Learning cells differ from buzz groups in that they are used for information-sharing rather than in-class discussion. The typical learning cell consists of two to five students, each of whom is given responsibility for learning different information. During the class period, or a session held outside class, students meet as a learning cell to exchange knowledge and at times test each other on their acquisition of information. Students report that these interactive methods not only promote intellectual, social, and personal development, but also new empathy for the role of teacher.

Laboratory/Studio/Shop

Three other interaction-based methods are also commonly used in American colleges and universities—at least according to our Innovations Survey results. These are the laboratory, studio, and shop. In every day usage, the terms "laboratory," "studio," and "shop" denote an atmosphere of practice and testing. These methods provide students an opportunity to grapple with skills or problems that are not easily classified within the theories or techniques most often associated with the traditional classroom. Through reflection intermixed with action, a student is able to develop the skill of improvisational display (studio), manual discipline (shop) or conceptual analysis (laboratory).

The faculty member's role in the studio, shop, or laboratory is that of coach—pointing out ways a student is creating, performing, or interpreting a particular product or work of art, or viewing (and potentially reconfiguring) a particular problem. The effective shop, studio or laboratory instructor helps a student to identify gaps in performance or understanding, while maintaining a sensitivity to the affective content that may surface as the student struggles with the ambiguity that is intrinsic to craftsmanship, creative expression, and critical inquiry. This emphasis on active engagement and the melding of head, heart, and muscle is gaining broad-based acceptance in American undergraduate education. Our

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Innovations Survey found that shops are used not only in AA Colleges (77%), but also in just as many BA I Colleges (75%). The full range of problem-based instructional methods suggests that practical application has become an educational value in undergraduate education, one shared by virtually all American colleges and universities.

Case Study Method

The case-study method, used extensively in business and law schools, is appropriate for instruction in any discipline. Unfortunately, the separation of professional schools from undergraduate education has prevented most undergraduate faculty from understanding, appreciating, and using this interaction-centered instructional method—although results from our Innovations Survey suggest that case studies are beginning to appear in many different classrooms.

The "case problem statement" is one of four different case study approaches that are used by faculty. Facts and the problem itself are briefly stated. Students then pause briefly (either alone or in buzz groups) to formulate their analysis of the case. Recitation or class discussion ensues, as in all of the first three approaches.

A second approach, the "case report," involves a slightly longer document. The report provides the basic elements of a situation with little supporting information; it also describes decisions that were actually made as well as the results of these decisions.

The "case history" provides an even longer, more complex account than either the case problem statement or report. It typically is less focused than either, providing both the context and the process by which a person, object, or organization is operating.

Finally, there is the "research case study," which is the most comprehensive of the four approaches. Normally it includes a detailed description of observable events, statistical analyses, a survey of applicable literature, and a complete diagnosis of a subject's strengths, weaknesses, potentials, and opportunities. Students either prepare the research case study alone or in a group.

Guided Design

Charles Wales and Robert Stager created another group-oriented method of interaction. Called guided design, this method requires that students work in small groups to solve problems. Each student group is given a brief description of a problem. They are then asked to identify a preliminary solution and the steps they took in analyzing and solving the problem. The faculty member works with each group, asking probing questions to get at the heart of problem-solving processes. Each group is then given a brief written description of a second, hypothetical group's response to the problem and must then indicate how its own solution differs from that of the hypothetical group. Each group may also be given additional information about how the other guided design groups addressed the problem. The process is repeated three to five times over a period of one to three hours. This methodology requires high order cognitive ability and is very engaging.

Socratic Dialogue

Like the case study and guided design methods, Socratic dialogue forces students to make difficult decisions. In so doing, students examine their values, learn new conceptual skills, and gain experience in the acquisition and distillation of complex and often contradictory information. Although the Socratic method has been primarily used in philosophy and legal education, it has potential value for virtually every discipline.

In most cases, the Socratic instructor makes use of open-ended or leading questions to provoke student discussion. She then asks them to explain how they

Socratic dialogue forces students to make difficult decisions.

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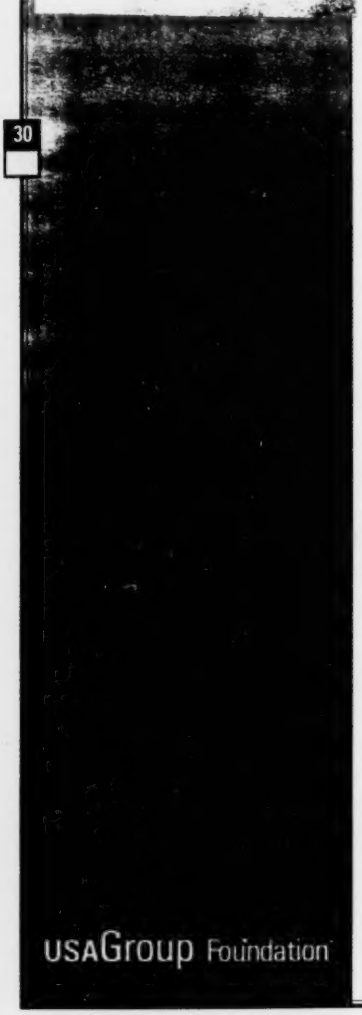
For many students, role playing is the most highly motivating (and entertaining) means of interactive instruction.



would solve the problem and what method they would use in solving it. Thereafter, the instructor asks students to comment on the strengths and flaws of suggested solutions. She then adds something to the problem or changes the nature of the problem slightly so students must re-examine the principles they are using to solve it. Typically, the Socratic instructor continues in this way, adding various complicating conditions to the case and challenging students to become problem solvers rather than mere passive receivers of abstract principles.

Simulation

Although simulation as an instructional method is classically rooted in the games of ancient Greece and medieval Europe, and the war games of 19th Century Prussia, its use in undergraduate education is relatively new. Nevertheless, simulations are becoming increasingly popular in the college classroom. Indeed, the number of simulations and games available for instructional purposes has more than doubled over the past 20 years. (Our Innovations Survey indicates that simulations are less commonly used in BA I Colleges than in other types of institutions.)

Student pressure for education that is both socially relevant and practical, along with the availability of inexpensive computerized simulations, has encouraged faculty to make extensive use of this method to help students integrate action and thought. Simulations usually represent some real-world event or setting in a reduced or modified form. The simulation highlights certain features in ways that are economical, reproducible, safe, dynamic, and involving. Because a simulation is always at least one step removed from the real world, students are able to risk new behaviors and learn from their successes and mistakes in an interactive and supportive environment.

Three kinds of simulations are being used most frequently: The "in-basket" simulation is widely used in both undergraduate and graduate business education, but it also can be of great value in other areas. During an in-basket simulation, a student (or student group) is presented with a series of problems or decision-making opportunities from the in-basket. Once a problem is solved or a decision made and placed in the "out-basket," another problem or decision is posed for resolution. Students must derive operating principles that enable them to make consistent and efficient decisions.

"Hands-on" simulations have been so-named because they require the manipulation of objects without computer mediation. Most board game simulations and simulations that require a significant amount of interaction among players are of this type. This kind of simulation is very common in the behavioral sciences, especially psychology and political science. It is also used in professional education and management programs, although the other two types of simulations are more commonly found in these areas of study.

The "computerized" simulation, having previously been confined primarily to research, is being used widely in instruction. Students in a computer-based simulation are presented with a problem to be solved or decision to be made, as in the in-basket simulation. Various factors about the problem or decision are presented to the student or programmed into the computer. Once a decision has been made or problem solved, the student enters her response in the computer. The consequences of the student's actions are then tracked by the computer and fed back to the student; the student is able to change her decision or solution or move on to another problem.

Role Playing

For many students, role playing is the most highly motivating (and entertaining)

means of interactive instruction. For example, students often become enthusiastic and inspired when given the assignment of "getting inside" a particular historical figure. They also are likely to attend closely to a faculty member who conveys the perspective of a particular theorist by playing the role of that person (particularly if another faculty member, in a debate format, is playing the role of a contrasting theorist). Most colleges and universities in our Innovations Survey report some role playing in their classrooms, but this is not a commonly used interactive instructional tool.

An important distinction needs to be made between simulations and role-playing. In a simulation the setting is artificial, but the students who participate play themselves. In contrast, the structured environment of a role play is usually given little attention; participants are the focal point, and they take on roles and act in ways that differ from their "real" selves. In short, role plays turn students into actors for the sake of learning from artificial behaviors.

Symposium

American higher education doesn't have a strong tradition of using symposia as an interaction-centered instructional method, even though most faculty members support their use. Typically, a symposium involves three or more panelists and an audience. The essence of an exciting and provocative symposium usually is not the opening commentary but the discussion that takes place among panelists, or between panelists and members of the audience. Colleges and universities often sponsor symposia outside their formal academic course schedule. Such symposia can offer splendid educational opportunities for all members of the academic community and, in addition, can bring increased visibility and credibility to the institution.

The essence of an exciting and provocative symposium ... is ... the discussion that takes place among panelists, or between panelists and members of the audience.

The basic structure of the curriculum calendar and clock ... has been normative in undergraduate education for at least 50 years.

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Chapter Four: Calendar and Clock in Undergraduate Education

Alternative uses of time (calendar and clock) have been at the forefront of curricular changes for at least 20 years. The nine-to-five work day no longer controls course scheduling or dictates a standard and often static semester or quarter system in which every student simultaneously takes three-to-five courses per term.

Nontraditional students are especially inclined to question the traditional length of many programs, for their degree work must be interspersed with career, family, military obligations, or other types of education (e.g., corporate training). Many students become highly motivated learners when they are provided a flexible course schedule that includes evening and weekend classes. Faculty members know that some course material is best presented and learned over a short, intensive period without the distraction of different subject matter; other material is conducive to extended treatment.

In recent years economic considerations, such as saving energy costs and using classroom space to generate income from external users, have also motivated colleges and universities to alter their curricular calendar and clock. Flexibility seems to be the key.

Prior to 1950 most curricular calendars were organized around an academic year that began shortly after Labor Day and concluded in late May or early June. A short summer session often accompanied this traditional nine-month calendar. The academic year was further divided into a certain number of terms, usually between two and four per year. A specified number of courses were offered each term, and most had a standard length of three meetings per week (between 8am and 5pm) for 12 weeks—a total of 36 hours. Certain courses or units had to be completed before a degree was awarded, and specific courses often had to be taken sequentially at certain times during the four baccalaureate years. A simple measuring stick, the "contact hour," was used to standardize time that faculty and students spent together. Typically, this measurement was based on the number of hours per term that a particular course met. A six unit course, for example, consisted of twice as many contact hours as a three unit course. A quantitative assumption lay behind this standardization: students received across the curriculum a specific "amount of education" that could be measured, divided, and assigned a specific value (see discussion in Chapter Six regarding cost/benefit analyses).

Structures of the Curriculum Calendar

The basic structure of the curricular calendar and clock described above has been normative in undergraduate education for at least 50 years. However, many variations have emerged in response to changing student needs and the desire to make maximum use of campus facilities; the most common have involved the number of terms offered during the academic year. We examine four different calendar models in this section and consider variations in the structure of the curriculum calendar.

The Semester Calendar

The two-semester academic year still dominates American undergraduate education. (Ninety-two percent of the institutions in our Innovations Survey

report using the semester as their principal calendar, and 71 percent have been on a semester calendar for the past 26 years.) The origins of the semester calendar go back many years: the two-semester (September to June) calendar originally was a compromise between the year-around, three-term system of Cambridge University (a highly influential model for American colleges during the Colonial period) and the agricultural need for low-cost youth labor during summer.

For years the fall semester began in late August or early September and ended some time in January. Most colleges and universities then adopted a shortened fall semester variation to avoid the "lame duck" period between Christmas vacation and final examinations. Thus, the fall semester (including final examinations) now typically runs through late December; the second semester begins in January and extends through mid-to-late May.

In all of its variations, the semester calendar holds two major advantages: it permits a lengthy and thorough study of subject matter and extensive classroom contact between faculty and students each term. However, this calendar discourages flexibility in student attendance and faculty teaching schedules; it also forces faculty to design courses for full-term or year long duration, regardless of curricular purpose or content.

The Trimester Calendar

The trimester, usually consisting of three fifteen week terms, is a less common variant on the semester calendar. Full-time students typically enroll for two terms per year and take four courses each term; alternatively, students can choose to attend three terms each year and take three courses per term. Several other variations on the trimester have been implemented. One subdivides each trimester into two blocks, during which each student takes one course (see discussion below on block calendar). The second variation uses a trimester structure in which courses vary in length and may be scheduled for one-half of the term or for the whole term, depending on the topic and student interest.

The trimester promotes efficient use of time and facilities because the campus operates throughout the year. It also allows, and even encourages, the acceleration of degree programs. (Students can take nine or more courses each year, compared with eight in the semester system.) On the other hand, the trimester calendar makes student transfer to other institutions difficult during the spring and allows less vacation time (in its 3-3 form) than many other calendars.

The Quarter Calendar

The four-term quarter calendar has been one of the most important but controversial calendar innovations in the past 50 years. It runs a distant second to the semester calendar in our Innovations Survey and holds several distinct advantages over the semester system. The quarter system permits students to take a greater number and variety of courses than is possible with two-term calendars. This calendar permits three-term course sequences of one, two, or three quarters, and it encourages electives and courses of a specialized nature; it also allows students to concentrate on a small number of courses per term.

However, the quarter system encourages rapid survey of course content. This, in turn, increases the likelihood of superficial coverage, and encourages use of textbooks and secondary rather than primary sources. When compared with the trimester, the quarter calendar makes inefficient use of time (40 weeks of instruction for the quarter system versus 45 weeks for the trimester system).

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The origins of the
semester
calendar
go back
many years.

33

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Several variations on the 4-1-4 calendar have been created over the past 25 years.

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The Block Calendar

Many colleges and universities have made their curricular calendars more complex (see following discussion of variable length formats) to respond to increased diversification in student and institutional needs. Other institutions, using a block calendar, have simplified theirs so students can participate in one educational program at a time. Colorado College was the first to offer the simplified block calendar. Two other liberal arts colleges (Cornell and Tusculum) and several universities that primarily serve working adult students (notably, National University) have also adopted the block system with some modifications.

The "pure" block plan provides basic instructional units ("modules") of three-and-a-half-weeks, followed by a break of four and one-half days. The academic year calendar consists of either eight or nine modules, and students typically take eight of these units. Undertaking only one course at any given time, students are able to engage in concentrated learning that mostly uses seminars, small group discussions, and projects rather than traditional lectures. This calendar also allows for extensive fieldwork and enables the institution to secure prominent visiting teachers that might not be available for a conventional semester-long course.

The major disadvantage concerns faculty and student stress: the block calendar places enormous pressures on them to perform well in a highly concentrated time period, and students have no "back-up" course if they are not doing well or don't like the course or instructor.

The Variable-Length Calendar

During the 1960s and 1970s, some colleges and universities modified the traditional semester system by adding a term of four to eight weeks; this variation helped to enrich students' education and permitted them to graduate with a double major or complete degree requirements in fewer years. The "intersession" model was even more widely embraced. Introduced by Florida Presbyterian College (now Eckerd College) during the early 1960s, the 4-1-4 calendar begins with a traditional fall semester that ends before the December Christmas break. This semester is followed by a one-month January term, or intersession, which is followed by another full semester. The January term is often a rich source of alternative programs, including student-generated courses, interdisciplinary theme courses, independent study, and intensive workshops; it has also been used as an innovative enclave or laboratory for faculty development, including pedagogical experimentation.

Several variations on the 4-1-4 calendar have been created over the past 25 years. The most common is the 4-4-1 calendar, in which the mini-term is placed at the end of the spring semester. Like the January term, the late spring term allows students to pursue independent or group study in areas of special interests. It has also been used as a time for faculty development and enables students to take early leave from campus for summer work or summer educational projects (e.g., foreign travel or service learning). Few colleges currently use the 4-4-1 model.

Another variation places the short term in December (a 10-3-10 calendar). The month-long January term can also be expanded in duration and number of credit hours to produce a 3-2-3 or 12-6-12 calendar. These latter modifications on the 4-1-4 blend many advantages and disadvantages of the trimester and 4-1-4 systems. Several other modifications of the 4-1-4 are more complex. Each term may be of a different length,and there may be four or five different terms.

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Mixed Format Calendar

No single calendar format is currently dominant. Rather, results from our Innovations Survey suggest that a mixed format calendar has begun to flourish. Sixty-three percent of the institutions surveyed report offering a one-month term, such as an intersession term, for at least the past 11 years. However, these institutions typically use multiple calendars rather than embracing the 4-1-4 calendar. The lesson is that no one calendar serves all learning purposes. The surveyed institutions also report that no new calendar formats have been introduced during the past four years. At least in terms of our Innovations Survey, then, a single, unifying institutional calendar has become passé. In the new century we can expect individual colleges and universities to use multiple calendars to meet the varying needs of diverse student populations.

Duration of the Calendar

In addition to the structure of the academic calendar, colleges and universities have explored shifts in the length of programs. In some instances programs are very short (often "extracurricular" and non-credit-generating); in others degree programs are shortened or lengthened to accommodate special student needs.

Single-Event Programming

Some colleges have explored the use of single-event programming through workshops, institutes, and short courses for academic credit; these are tailored in duration and location to the unique learning goals and time availability of students—many of whom are working adults. Prior to the 1980s, this type of intensive short-term workshop or institute format was frequently used for freshman year orientation. One of the most notable examples was sponsored by Prescott College during the 1960s and early 1970s: before the start of the academic year, students and faculty participated in a wilderness-survival experience that embodied the college's curricular emphasis on personal growth and ecological education; the program also helped to forge meaningful student-faculty relationships. Similar programs have been offered at several other liberal arts colleges (e.g., Azusa College, Warren Wilson College).

Single event, on-campus orientation programs for new students also have been rather widely conducted. At Eckerd College, for instance, freshmen attended an "autumn term" during the early 1970s that included a course taught by a mentor and an academic project for which credit was granted. The program was stimulating in content, taught basic academic skills, and focused on the interdisciplinary nature of learning.

While orientation programs provide a vehicle for new students to enter an institution, cultural and athletic events, extended institutes and workshops, and other campus activities tend to hold student interest, reduce attrition, and encourage student return after graduation. Virtually all colleges and universities offer extensive single-event activities. In recent years many institutions have systematized short-term extracurricular offerings, requiring student attendance at a certain number of events per year or offering academic credit for attendance.

Short Programs

Since the 1970s and 1980s, increasing financial pressures on colleges and universities have made imperative the efficient use of time. "Time shortened" degrees have been made possible by summer school units, advanced placement examinations, and credit given for prior life experiences. Especially significant is the interest in a three-year baccalaureate

No one calendar serves all learning purposes.

35

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There is no reason that more colleges and universities cannot provide similar **lifelong learning** services.

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degree. This is not surprising, given that completing four years in three results in substantial savings for both students and the institution. Also, students can enter graduate or professional school or join the workforce one year earlier.

As Chancellor of the State University of New York, Bruce Johnson has suggested that appropriate courses, calendars designed for year-long matriculation, extensive use of self-paced and independent study, and early entrance to professional and graduate schools must be available if a time-shortened degree is to be successful.[8] However, it is insufficient to simply compress a program into a shorter time frame; a more encompassing explanation must address such questions as the meaning and expected outcomes of a degree and whether these outcomes can be achieved in less time than four years.

Programs of Unspecified Length

Some of the most innovative curricular designs in recent years have shortened the time students are enrolled, while others have extended student involvement. Such is the case of colleges and universities that conceive of higher education as a lifelong commitment to their students. They don't expect their students to devote one part of their lives to education and another to career and family; they don't even expect their students to participate in regularly scheduled continuing education. Instead, they view their mission as offering continuing, spontaneous activities for their students at any point in their lives that makes sense to them.

There are important arguments for flexible, non-structured calendars to support such notions. Those calendars permit students to work at a comfortable pace that is compatible with their individual learning styles. They also provide natural flexibility for acceleration and remediation, and they are able to make effective use of audio-visual and computer technology.

Flexible, non-structured calendars also have distinct disadvantages: They don't provide adequate structure for students who need strict deadlines to make satisfactory educational progress. Their involvement in such instructional technologies as videotapes and programmed and computer-assisted instruction is expensive, and faculty members are often unfamiliar with their uses. Perhaps most troublesome for non-structured calendars is the all-pervading assumption that students are purchasing instructional services for a specified period of time. In undergraduate education this normally means two or four years. Thus, a calendar is needed to structure the scheduling and duration of instructional activities.

Only when we look outside higher education do we find educational programs that serve learners through various time sequences. Many business corporations, for example, offer management development, career planning, and even liberal arts programs over an employee's entire working life. There is no reason that more colleges and universities cannot provide similar lifelong learning services. As adults mature, decisions about their learning reside with them, suggesting that a college or university curriculum might be shaped more by the developmental stages and needs of its learning population than by the preferences of faculty and other stakeholders.

Curricular Clock

The quality of undergraduate education is influenced by the way in which the academic year calendar is structured, but it is tangibly impacted by the daily course schedule. Earlier we observed that new student populations, and particularly adults, require course offerings at times other than 9 a.m. to 5 p.m. The implications for teaching and learning at

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traditional times and in conventional formats are enormous. Working adults, for instance, often experience logistical nightmares when they try to take a traditional course that meets for one hour, three days per week. Their struggles in simply getting to class on time can easily impair their ability to focus on and grapple with complex subject matter. Fortunately, many innovative alternatives have been explored by colleges and universities over the past 50 years.

Weekday Instruction

Times of the day other than the 9 a.m. to 5 p.m. hours are convenient for part-time faculty members and students who commute, work part- or full-time, and are raising children. The implications are that alternative times must be scheduled for academic advising, classes, study modules, and workshops. With increasing frequency, courses are being offered during evening hours in community colleges and comprehensive public and private universities; this accomodation is less true for liberal arts colleges and research universities. Results from our Innovations Survey suggest that flexible uses of the weekday clock may be more prevalent than most of us realize. While nearly all institutions (97%) indicate they offer hour-long weekday classes three times a week, they also offer other weekday classes that are longer than one hour and meet less often than three days. Moreover, all of the surveyed institutions say they offer weekday evening classes.

Several institutions that primarily serve working adults have explored the use of "marginal" time for course offerings. While enthusiasm has been waning among most faculty and administrators, early morning classes still hold great potential—though the availability of electronic technologies that enable students to learn during their own self-designated "marginal times" may dim these prospects. Yet many potential students still can enjoy and benefit from attending class prior to heading to work, and there are institutions that have adapted to this need. For example, Long Island University has provided management classes for suburbanites on their way to work in New York City, and Santa Clara University offered its own early bird engineering program from 7 to 9 a.m. during the 1980s. The lunch hour is another marginal time to reach nontraditional students; during the 1980s the New School for Social Research offered a "Language at Lunchtime" program of short-term, intensive courses to help New York City residents acquire fluency in languages.

Weekend Instruction

Many colleges and universities wishing to serve working adults offer courses and intensive programs during the weekend; indeed, some programs are based solely on weekend programming. Nearly all of the surveyed institutions (93%) offer weekend courses, and 50 percent have sponsored them for at least 11 years. However, none of the BA I Colleges indicate they offer weekend instruction.

It is not only the working adult who may be available during the weekend; the adult's family can also be involved in brief "educational vacations" (e.g., as sponsored by New York's Rockland Community College during the 1970s). Traditional colleges and university campuses are superb locations for family activities because they offer recreational facilities, studios, laboratories, museums, sporting events, theatrical events, cafeterias, dormitories, and spacious grounds. With imagination and a little effort, they also can offer mini-courses geared to different interests and age groups.

Mixed Format Instruction

Our Innovations Survey reveals not only numerous scheduling formats but

Many colleges and universities wishing to serve working adults offer courses and intensive programs during the weekend.

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Variety is the rule; it is no longer the exception.

also great variety within colleges and universities. Seventy percent of our surveyed institutions offer intensive courses (e.g., day-long classes), and 56 percent include mixed length schedules within the week (e.g., special Wednesday or Friday programs). With the exception of the BA I Colleges, many institutions (77%) offer integrated computer courses that at least partially enable students to take a course whenever they want. Associate of Arts Colleges offer the greatest variety of clocks, including the highest percentage of virtual classes; they are models of flexibility, adaptability, and service. All of the surveyed institutions schedule classes at various hours and days of the week. Similar to their use of calendars, most colleges and universities use various clocks to accommodate student needs and learning styles. Variety is the rule; it no longer is the exception.

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Chapter Five:
Faculty Development for Undergraduate Education

In Chapter Three we observed that a faculty member's principal role in undergraduate instruction is to mediate and assist the student in acquiring subject matter content or experience. Most often faculty preserve and transmit established subject matter in a given field through time-tested pedagogical methods that are primarily content-centered (e.g., the lecture). At other times, faculty create new subject matter through scholarship and research and use nontraditional pedagogical methods that most often are student-centered (e.g., learning contracts) or interaction-centered (e.g., seminars).

The case for professional development of undergraduate faculty grows out of the tension between stasis and change and the need both to preserve and to innovate. This chapter focuses on innovations in faculty development theories and practices over the past half century, which were partly defined and certainly influenced by the changing character of faculty work. We begin with a brief examination of these changes and then proceeded to innovations in faculty development.

The Changing Character of Faculty Work

If we were to have spent a day with a traditional faculty member in 1950, we would have noted that this person spent most of the day teaching and meeting informally with residential students. In those days faculty typically didn't earn much money, but they also were subject to little direct supervision and—other than demanding teaching schedules—led rather relaxed lives. In research universities "publish or perish" was alive and flourishing, but pressures for research and publication were offset by light teaching loads and the support of graduate assistants. There was little pressure for faculty members outside major research universities to publish, and many of those faculty members didn't even hold doctorates.

Following Sputnik and during the Vietnam War, significant forces began to impact the Academy—and with dramatic results. More faculty members were pressured to conduct research and teach full loads. More students flocked to colleges and universities, and that produced even larger classes, heavier advising loads, and calls for greater faculty productivity and accountability. These demands, in turn, generated pressures to assess faculty performance, and student evaluations became popular and continue as a standard practice today. Whereas in earlier years faculty members could stand behind the shield of academic autonomy, the push for accountability during the 1980s began to penetrate and erode this most sacred of norms.

By 1999, when our Innovations Survey was conducted, all but one reporting institution indicated that they conduct student course evaluations. Most have developed and used their own evaluation form, but 31 percent use a standardized instrument (normally produced by a large national testing corporation, such as the Educational Testing Service). With one exception, all of the surveyed institutions also make extensive use of faculty self-evaluations, and all but two have peer observation and review; 75 percent of BA I Colleges and 55 percent of BA II Colleges use alumni in evaluating faculty. Clearly, the era of accountability has been transforming.

All but one reporting institution indicated that they conduct student course evaluations.

39

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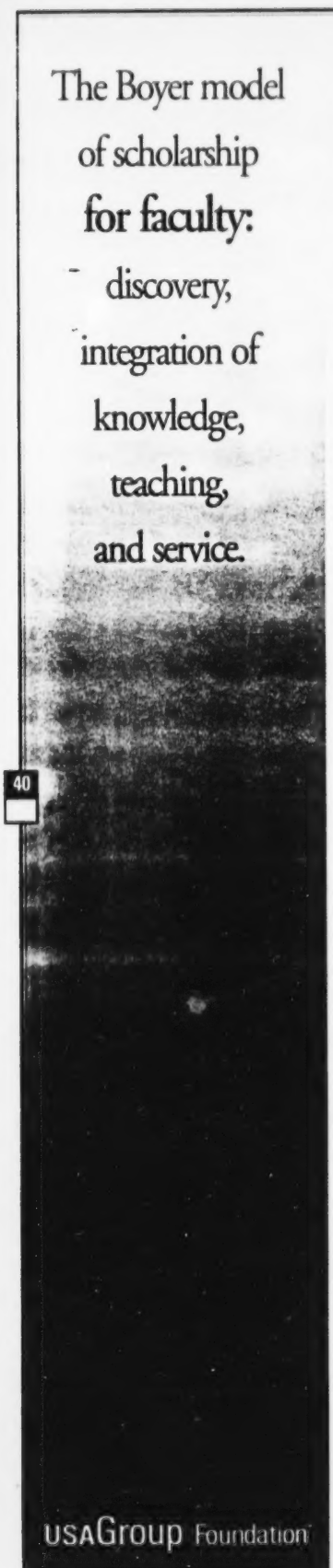

There also have been major changes associated with faculty compensation. Faculty prior to the 1960s expected a modest annual salary unless they were employed by a major research university. In contrast, those entering collegiate ranks during the late 1960s and early 1970s received attractive starting salaries and fully expected affluence when they reached full professor status. This expectation never materialized for most faculty. Prompted by growing public disenchantment with higher education and financial constraints, salaries slowed and then plateaued during the 1980s.

The shift in faculty work life did not stop there. In 1990, Ernest Boyer published a highly influential report entitled, "Scholarship Reconsidered: Priorities of the Professorate."[9] He advocated a new model of scholarship that includes discovery, integration of knowledge, teaching, and service. He also proposed that the priorities and reward systems of faculty members be altered and broadened to encompass these related functions.

Several follow-up publications[2] and numerous conferences and workshops over the past decade have been devoted to Boyer's proposal. While no single document has ever changed American higher education at its core, the Boyer report continues to influence faculty and academic administrators in rethinking criteria for tenure, promotion, and the scope of faculty development programs.

Of course, academicians face many challenges as they seek to implement these new priorities. For example, the quality and quantity of research publications can be assessed by faculty review panels, but other forms of scholarship are less easily evaluated. Boyer's proposal also requires clear academic goals and instructional priorities, ongoing classroom assessment, the exercise of critical reflective practice by faculty, and especially the establishment of ambitious and comprehensive faculty development practices.

In Search of A Faculty Development Model

Faculty development was not an invention of the 1950s or even the 1960s or 1970s. For many years faculty had taken sabbaticals, and a fortunate few obtained appointments as visiting faculty or received funds to travel here and abroad. Other faculty got grants for scholarly research, and almost every faculty member had summers free for reading, writing, and course preparation and revision. Prior to 1950, then, faculty development tended to be individually focused, sporadic, and informal; indeed, faculty development "programs" were rare.

Faculty development efforts gained momentum in the 1970s as various models were proposed to explain its theory and practice. Bergquist, Centra, Gaff, Henry, Katz, Lindquist, and Phillips were some of the early scholar/practitioners who conducted research and disseminated concepts and ideas in what became a field of rapidly growing interest and sophistication. The educational reform movement also generated intense scrutiny of the practices and effectiveness of higher education, including the need for faculty to improve teaching. Throughout the 1960s and 1970s, as the faculty development movement gained momentum, most faculty development practices focused on instructional improvement activities. In the 1980s and early 1990s, however, the usefulness of centers and committees for faculty development was questioned, and their very existence on many campuses was threatened. It was reported in 1989 that at most 25 percent of a faculty took advantage of services offered by faculty development centers. Despite this decline in interest, many colleges and universities have established some form of coordinating office for faculty development activities and are moving toward greater integration of traditional and newer approaches.

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The question of what constitutes faculty development has changed over the past 20 years. Early emphasis equated faculty development with instructional improvement, while subsequent thinking has adopted any and all strategies that promote the vitality and productivity of individual faculty. For example, Bergquist and Phillips proposed a model of faculty development that included three major dimensions: the faculty member as person, teacher, and organizational member. Later, the Professional and Organizational Development Network added a fourth—the professional development of faculty.

The past two decades have seen a push toward even more holistic and comprehensive approaches to faculty development, including acknowledgment of individual differences by gathering information about the motivations, talents, and deficiencies of an individual faculty member, and then tailoring a specific development program that builds on this information.

A Three Component Strategy

Despite diversity among various faculty development strategies, there is consensus that any successful faculty development program has three characteristics. First, there must be *structures* within the college or university to support faculty growth and development (e.g., evaluation, reward systems, sabbatical leave policies). Structural strategies provide the stable containers in which faculty can take risks, learn from their mistakes and successes, and work in a collaborative manner with students and colleagues.

Second, there must also be a focus on the *processes* in which faculty members engage (e.g., teaching, advising, and scholarly research). Faculty must especially learn how to be skillful in many areas for which they received little preparation prior to their first collegiate appointment—such as governance, public service, and mentoring. Third, the *attitudes* of faculty members must complement the structures of the institution and the processes in which faculty participate. Attitudes help to shape culture, and culture influences the character of the institution and its capacity to address changing needs among students and within the community it serves.

Changes in Structure

The persuasive advocacy of Ernest Boyer for new priorities among college and university faculty has set the stage for many structural changes. New evaluation procedures are needed—the portfolio approach being among the most promising. There also is a need for new ways to thoughtfully and systematically plan for the diversity of faculty development services that are required to encompass the diverse realms of faculty scholarship—the professional growth/development contract being of particular merit.

The Faculty Portfolio

Self-reflection is critical to the improvement of any professional practice, including undergraduate teaching; and faculty must become aware of the assumptions that underlie their practices and be able to understand them. One method of documenting deep reflection over time is the faculty portfolio. Not a recent innovation, the portfolio has been borrowed from such fields as art and architecture, where the common practice is for professionals to display samples of their work to prospective clients or employers. The faculty portfolio has developed into a structured approach for faculty to report on their own growth and accomplishments, including descriptions of their teaching and professional development activities and the lessons they have learned in reflecting on them.

To allow for reflection, the ideal faculty portfolio is constructed over a significant period of a faculty member's career. Done this way, self-evaluation:

The question of what constitutes faculty development has changed over the past 20 years.

41

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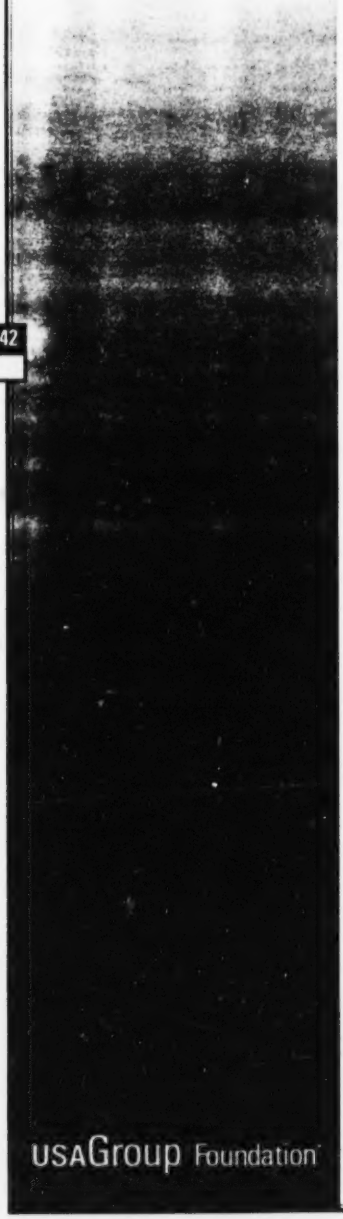
Improved teaching is believed to strengthen student learning.



- has intrinsic value insofar as it is used to complement other sources,
- is internalized by the faculty member in ways that lead to continuous efforts at self-improvement,
- is formative rather than summative, and
- helps to create an atmosphere of collective reflection and voluntary exchanges of information with other faculty.

Professional Growth/Development Contracts

Professional growth or development contracts have been one of the most successful methods to plan and implement faculty development activities. Typically, contracts use a procedure to assess a faculty member's strengths and weaknesses, current areas of responsibility, professional growth goals, proposed activities to achieve goals, and methods by which goals will be evaluated. In the late 1970s Gordon College created one of the earliest faculty- growth contract models to emphasize individual faculty control and perception of needs. At many colleges using this strategy today, faculty have agreed to participate in the contracting process in order to become eligible for faculty-development funds and sabbatical leaves.

Changes in Process

The most common form of faculty development leading to changes in process concerns instructional improvement. With one exception, all institutions completing our Innovations Survey make extensive use of instructional improvement workshops; 75 percent use retreats to encourage and improve teaching, and 90 percent provide intensive training and classroom observations with feedback. One AA College reports that it offers release time for new faculty to attend a seminar, and one of the BA I Colleges has a program in which a senior faculty member is given course reduction for two years to be a consultant to other faculty. Seventy-nine percent of the reporting institutions occasionally use release time for course preparation. No BA I Colleges use teaching assistants, while all but one of the MA I Colleges and Universities do.

While faculty development in some colleges and universities has been discredited precisely because it tends to focus on classroom instruction, much financial support for faculty development is based on the assumption that these activities can indeed improve teaching. In turn, improved teaching is believed to strengthen student learning, improve student retention and, ultimately, enhance institutional reputation for caring about teaching, learning, and students. For instance, the Fund for the Improvement of Post Secondary Education—one of the most important sources of federal funding for undergraduate innovations—has rarely funded faculty development programs unless they directly and clearly are linked to improvements in student learning. Of the many different faculty development strategies that have been devoted to improving teaching and learning processes, the following four point the way to future practice.

Credit Courses in College Teaching

Short-term workshops and seminars are helpful ways to stimulate faculty awareness about teaching and give an opportunity for faculty members to interact. However, they often fail to provide in-depth coverage that is required to teach new skills. To address this issue, many universities now offer longer-term credit courses in college teaching. Typically, someone from education, psychology, or the faculty development office leads a course on "best practices" from around the country in specific areas of interest. A sample course syllabus often includes:

- videotaping students as different teaching methods are employed, then critiquing their performance;

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- using case studies and vignettes to apply concepts and principles and analyze complex teaching situations;
- having students maintain course logs that include reflections on their own presentations and growth during a course (as well as comments on class discussion, readings, and other assignments);
- having students observe exemplary teachers, then using written descriptions of class observations as a basis for discussions on successful teaching styles;
- having students read about and discuss learning styles and the nature of human learning;
- teaching students what a course syllabus should contain; and
- suggesting ways to evaluate one's own instruction and student learning in a course.

The University of Miami/Miami-Dade Community College Teaching/Learning Partnership Project is an excellent example of a faculty-development project that offers credit courses in college teaching. Begun in 1987, this program was created by faculty to improve teaching and learning. Two graduate level courses were developed, and all new faculty members, as well as faculty seeking to renew their contracts, must successfully complete these courses.

Instructional Consultation, Peer Observations, and Peer Coaching

The concept of instructional consultation involves a process in which a faculty member gives and receives feedback on his teaching and then interprets it in collaboration with at least one other colleague. The person who serves as consultant usually is a faculty-development specialist or a faculty colleague who has received specific training in instructional consultation. While not a new concept, instructional consultation has steadily grown as an important part of a comprehensive faculty-development program. An example is the "Teaching Consultation Program" offered by the Kentucky community college system. A trained faculty member works with another faculty member on an individual basis; the process occurs over one teaching term and includes classroom observations, video recording, the use of a student inventory, and regular meetings between the two faculty.

Another form of consultation involves student observers who serve in a consultative role to faculty; however, this practice seems quite limited (e.g., Carleton College, Saint Olaf College). Consultation with colleagues and experts is often rated by faculty as superior to workshops in challenging assumptions about teaching and in presenting alternative approaches to instruction. The success of this technique depends upon faculty openness and full participation in the process.

Intensive Training Programs

Intensive programs most often involve instructional skills workshops and teaching labs. In the former, a small group of faculty members participate in an intensive 24-hour workshop that focuses on micro-teaching activities and may include other themes related to teaching and learning. In the laboratory, teaching occurs in a small group "lab setting" rather than in the instructor's own teaching environment.

Another method is based on what is often called an "appreciative approach" to instructional improvement. Rather than starting with an assessment of what additional knowledge or skills may be needed (the so-called "deficit approach"), this strategy begins with the unique strengths that a faculty member brings to her teaching. Attention also is directed at reflective inquiry about moments when she has been most successful and finds her work most satisfying. The best known of these appreciative programs is appropri-

Instructional consultation has steadily grown as an important part of a comprehensive faculty-development program.

43

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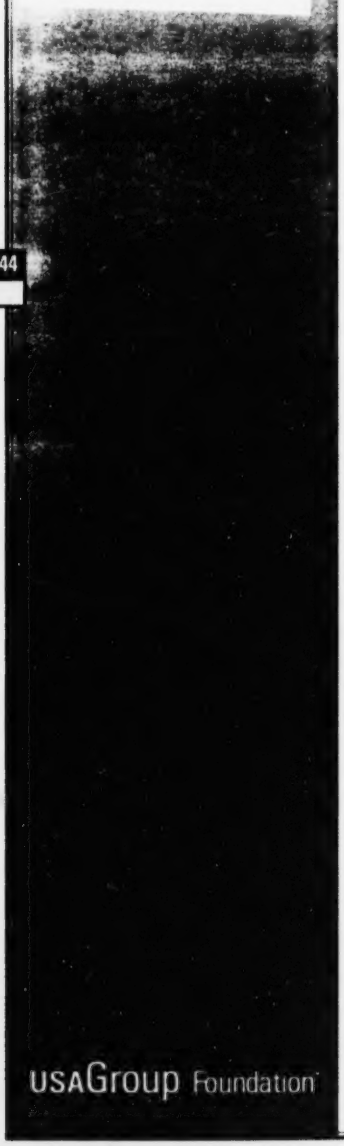
The Master Teacher/Mentor models of instructional improvement also build on appreciation.



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ately titled "Great Teachers." Faculty members share their best instructional practices and seek consistency in creating instructional settings in which they can be most effective and personally gratified.

Master Teaching Mentoring/ "Shadowing"/Coaching Programs

The Master Teacher/Mentor models of instructional improvement also build on appreciation. They emphasize the strengths and wisdom of faculty—particularly senior faculty. "Partners in Learning" was an inter-institutional program introduced into several New Jersey colleges in the late 1980s. In this program two faculty members worked together in making classroom observations, conducting individual student interviews, and meeting to share insights; group events were also organized for program participants. The procedures developed by Katz and Henry during a decade of applications from the New Jersey project were then applied to a massive program called "The New Jersey Master Faculty Program." That program involved 30 New Jersey institutions and included a combination of peer observation techniques, paired observers and teachers, student interviews, and discussions about teaching.

Changes in Attitude

In the early years of contemporary faculty development (1960s to 1970s), clear bias often was evident in leaders who conducted workshops and institutes; they stressed that the heart of the matter was the teaching process. Attention to course content and other "intellectual matters" was considered little more than a distraction from, or a defense against, addressing the hard and personal issues of teaching. This mistake held back the field for many years, until it was realized that ideas are very personal for faculty, and it's just as risky and important for them to share perspectives about interdisciplinary possibilities and intellectual topics of mutual interest (e.g., deconstruction or complexity theory) as it is to explore student and career issues.

In recent years these biases generally have been addressed and overcome—often through collaborative activities. Several examples suffice to capture this emerging approach. These collaborative efforts don't so much teach faculty new practices as they elevate discussions about teaching; these discussions tend to make faculty feel better about their enterprise and more committed to their teaching.

One such project involved Centenary College faculty; they found their experiences in creating interdisciplinary courses had positive effects on faculty development by increasing creativity, cohesiveness, mutual respect, and building of common bonds with colleagues from other disciplines.

Another project, also involving an interdisciplinary approach to teaching and learning, was undertaken at Dekalb College of the University System of Georgia. Faculty from psychology, religion, geography, history, and literature created an interdisciplinary approach to teaching historical problems in the social sciences. Among the positive results were teaching improvements, shared teaching techniques, and informal evaluation and coaching. Despite these shifts in approach to faculty development, more attention needs to be given at times to personal concerns that faculty have about career, life, and community. Two strategies follow.

Career Consulting/Life Planning

In this approach, a professional consultant or peer assists the faculty member in assessing his or her career and in examining factors that affect it. Central features include identifying career direction, clarifying issues, facilitating the removal of barriers, determining information needed to make decisions, examining alternatives,

finding necessary resources, and reinforcing new decisions.

Career consulting is probably as old as careers, and college and university teaching is one of the oldest. However, systematic and continuous career consulting for faculty members is a very recent phenomenon; the literature cites only a handful of institutions as providing faculty individual career counseling or life planning services (e.g., Loyola of Chicago, College of Charleston, University of Nebraska at Lincoln). Two of the earliest workshops were offered during the 1970s and early 1980s by the Associated Schools of the Pacific Northwest and the Council for the Advancement of Small Colleges. In recent years, many colleges and universities also have made available services and programs that assist faculty with such personal issues as financial planing, retirement planning, family and marital problems, and dealing with death and other losses.

Service to Profession, Institution, Community

The emphasis of faculty development is rarely on service to profession, institution, and community. Fortunately, as with most adults, faculty members are able to stress different activities at different stages of their careers. A 1981 study of 106 faculty from 12 liberal arts colleges in the Midwest found, for example, that as faculty become more experienced and comfortable with their teaching, they also become more adept at service to their institution. The implications are that service to institution also can extend to profession and community as faculty mature and grow professionally.

One of the best examples of this strategy is found at Northland College, which has established the Sigurd Olsen Institute; through the Institute faculty and students study environmental and related political and cultural issues in Northern Wisconsin. Faculty members get to be entrepreneurial and find opportunities to provide direct tangible service to their community through research, consulting, and problem-solving.

Toward a Comprehensive Program

New faculty members tend to be easier to attract to voluntary faculty development activities than those in mid- or-late career. To serve faculty throughout their careers, some colleges and universities are beginning to implement comprehensive faculty development programs that use a combination of techniques that focus on multiple areas (e.g., personal and career development, instructional improvement, organization development).

An understanding of career stages of faculty can help to target programs that meet individual needs. For example, beginning faculty normally require assistance with credit courses in college teaching, instructional skills workshops, mentoring by senior faculty and master teachers, and new faculty orientations.

Alternatively, mid-career faculty can benefit from career consulting, life planning, and counseling over personal issues; instructional consultation, peer observations, and peer coaching; professional growth contracts; reflective practice and transformative learning; sabbaticals; and teaching portfolios.

Finally, senior faculty often need counseling services for personal issues (e.g., retirement planning); reflective practice; sabbaticals; and opportunities for service to profession, institution, and community. Examples of comprehensive programs can be found at the University of Nebraska, the University of Georgia, Loyola University of Chicago, and Fairleigh Dickinson University.

An understanding of career stages of faculty can help to target programs that meet individual needs.

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Investigators start with the program or innovation that is to be assessed.

Chapter Six:
Costs and Benefits of Undergraduate Educational Innovations

We suggested in Chapter One that resistance to the status quo and resistance to change are not distinct and opposed behaviors. Rather, they are interactive dimensions of an ever-unfolding and unbroken whole. That is why we see planned innovation as being at the center of the dynamic tension between stasis and change.

At some level, a similar relationship should be assumed to exist between educational costs and educational benefits: we cannot truly understand one without understanding the other, and we cannot successfully engage one without simultaneously engaging both. Unfortunately, the practicability of this theory dissolves under examination.

Two Perspectives

In seeking to understand the complexities and challenge of identifying and assessing costs and benefits in American undergraduate education, it is useful to observe that two very different perspectives are taken on this issue. Furthermore, these two perspectives encompass much more than just cost and benefit; they are opposing ways of knowing and prescribing truth about the subject.

From an *objectivist perspective*, there are "truths" in the world that can be discovered and verified. In the domain of cost and benefit analysis, the focus of this view is on the identification of cost and benefit categories that are assumed to be unchanging and can be measured and stated in quantitative, verifiable terms. Thus, test scores are valid measures of benefit, while capital investment in computer equipment is a valid measure of cost. With regard to decision-making processes, the *objectivist perspective* states that the cost/benefit categories to be employed must be identified before moving to specific programs or innovations that are to be assessed. This viewpoint is typically (and appropriately) assumed by accountants—as well as by many administrators, state legislators, trustees, accreditors, and community leaders who seek to strengthen institutional accountability.

The alternative *constructivist perspective* is based on the fundamental assumption that "truth" becomes valid and useful within a specific context or community of shared values and beliefs. This approach encourages not the identification of rigid cost/benefit categories but, instead, the identification of purposes for which the analysis is being conducted.

The decision-making process operates in reverse from the *objectivist perspective*. Investigators start with the program or innovation that is to be assessed. Then they identify the specific cost/benefit assessment strategies (see five examples later in this chapter) that will be of greatest value in making decisions about the program or innovation. Those members of a college or university who are intimately involved with program planning and ongoing program administration most often embrace the *constructivist perspective*.

The Objectivist Perspective

Literature on higher education's attempts to build a formal, unifying model of costs and benefits is ample, and there are examples of both individual institutions and colleges and universities acting in concert to undertake this type of cost-benefit analysis.

Meeth's Cost Analysis Model

One of the most notable of early collaborative efforts was conducted by Richard Meeth during the early 1970s with 65 private liberal arts colleges.[10] Meeth approached the task from the traditional perspective of Cost Analysis, a methodology that presumably involves cost accounting, cost effectiveness analysis, and cost-benefit determination. The project was classically "objectivist." It was systematic, used common definitions, involved a modest "decision tree," and achieved curricular cost reductions among participating colleges—thereby releasing resources for other purposes.

However, because the locus was the reduction of curricular costs related to revenues, the project failed to deal in a significant way with the connection between educational costs and educational benefits (in particular, outcomes). The project failed even to identify a suitable definition of the most important outcome identified in the title of the book: *educational quality*. Unfortunately, actual campus practice of objectivist cost/benefit analysis during most of the past 50 years has tended to isolate costs and benefits from one another or to treat the relationship between the two superficially.

Bowen's Efficiency Model

No one over the past 30 years had more impact on the subject of cost/benefit analysis in higher education than the late Howard E. Bowen—a distinguished economist, scholar, and college and university president. Bowen urged a comprehensive approach to cost/benefit analysis, but he pointed to three great difficulties that stand in the way. First, he believed that unit costs in higher education will always be elusive because certain immutable "laws" apply to colleges and universities that aren't commonly found elsewhere:

(1) The dominant goals are educational quality, prestige, and influence; however, the virtues commonly associated with these goals are inputs that cost money, not outcomes from education that actually takes place.
(2) In seeking to attain these three goals, an institution essentially can spend unlimited money.
(3) Each institution raises all the money it can.
(4) Each institution spends all it raises.
(5) The cumulative effect of the first four laws is toward ever-increasing expenditures.

Second, Bowen believed that the possession of knowledge about educational costs provides incomplete information needed for accountability unless it is linked to knowledge about educational outcomes. The difficulty is that most colleges and universities know little about the actual results of their educational endeavors and almost nothing about the influences that changes in methods and procedures have on results.

Third, while Bowen believed that the idea of *efficiency* is at the heart of any understanding of the relationship between costs and outcomes, he identified two errors in how this concept frequently is understood and used. The first error is to regard efficiency primarily in relation to cost. (The lower the cost, the higher the assumed efficiency.) A second error, at the opposite extreme, is to see efficiency primarily in relation to outcomes. (Improved outcomes are assumed to be desirable regardless of cost.)

Bowen argued that both approaches fail to recognize that efficiency is a *ratio* between cost and outcomes: If the outcomes surrendered are more valuable than the opportunity cost of the resources saved, cutting costs will not be efficient; in turn, if the outcomes added are not as valuable as the forgone benefits of using the resources for other purposes, increas-

The probable reality is that there can be no single "objectivist" theory about educational costs and benefits.

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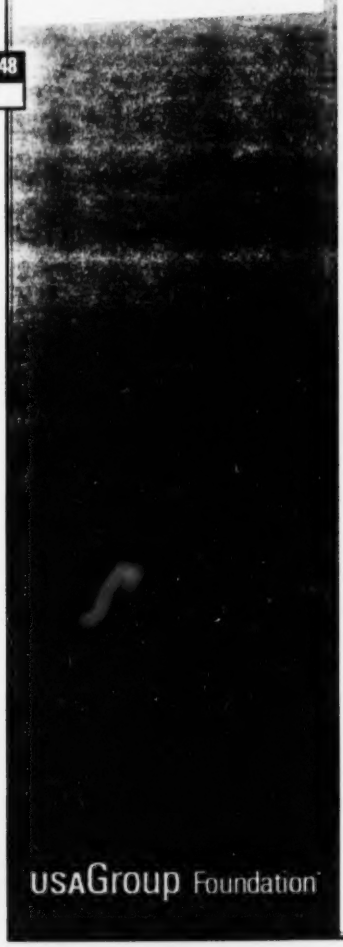
The question of productivity should shift from an emphasis on **faculty inputs** and costs to student learning productivity as the most promising locus of analysis.



ing cost will not be efficient. Thus, Bowen argued that institutional differences in efficiency arise not only because costs or outcomes differ but also because the ratio of outcomes to costs are not the same.[11]

Dickeson's Revenue Reallocation Model

A recent excellent book in the genre pushes the call for public accountability to a new level but makes no claim for holistic cost/benefit theory or a precise decision tree for linking these factors.[12] The author, Robert Dickeson, seems to approach the subject more as a political scientist than as an economist—and in this role offers a bridge between the objectivist and constructivist perspectives. Given the nature of higher education, and especially its intangible outcomes and inclination for gross inefficiencies, the implications of Dickeson's arguments are that "satisficing" strategies (our term, meaning "good enough") are more feasible than questing after the impossible: maximization, the basic assumption behind the objectivist, business-industrial paradigm of approaching cost/benefit analysis.

This is not to say that Dickeson allows colleges and universities to get off the hook. To the contrary, he cogently argues that an environment of scarce resources makes it urgent for institutions to get a handle on expenses—and the most important have to do with "the sacred," *educational programs*. Dickeson builds his case on two premises: First, *not all educational programs are equal;* some are efficient, some are effective, and some are central to the educational mission of the institution—but others don't measure-up to these standards. Second, *the price for academic program bloat for all is impoverishment of each*. In short, if we want to sustain educational quality for the public good, we can't achieve universal success across all educational programs; the political and economic realities are such that we lack the resources and must make choices, however difficult those choices always are.

Dickeson sees the principal challenge as the reallocation of scarce resources to achieve educational quality and strategic balance. He rejects as politically naïve the notion that resource reallocation can be achieved one program at a time through the annual budgeting process. Instead, he urges new ways of assessing institutional mission, identifies common elements for defining an educational program, and recommends ten qualitative and quantitative criteria for undertaking educational program prioritization. He then outlines a series of feasible strategies for planning and implementing the *simultaneous review of all educational programs* using these criteria.

Ferren and Slavings' Efficiency and Effectiveness Model

Another excellent contribution to the objectivist literature is by Ferren and Slavings, who ask: "Can colleges and universities be more productive?"[13] In seeking answers, the authors reject the ultimate usefulness of traditional cost-cutting measures (e.g., deferring maintenance, raising class sizes) in favor of restructuring curriculum and instruction for both efficiency and effectiveness. They then describe various approaches to understanding how cost and quality are related, including the importance and meaning of efficiency to each.

Perhaps most significantly, the authors argue that the question of productivity should shift from an emphasis on faculty inputs and costs to student learning productivity as the most promising locus of analysis. To them, the most critical issues and analytical tools must center on the curriculum, student success, and overall institutional productivity (i.e., benchmarking general educational costs and costs across disciplines with those of similar institutions).

Thus, their monograph focuses on the analysis of instructional costs and the relationship between resources and results. The authors argue there is strong evidence that many investments in instructional costs (e.g., innovations in teaching materials, technology, peer instruction, experiential learning) have actually increased learning. They also identify what drives up learning productivity (e.g., hands on experience and internships) and the positive factors (e.g., facility and technology improvements) and negative factors (e.g., under-enrolled classes, student attrition) that drive up educational costs. They offer various definitions of curriculum, and the implications of each for cost/benefit analysis.

Ferren and Slavings propose that the achievement of quality incorporate both continuous improvement (innovation) and refined assessment tools. The authors mention both "soft" quality indicators (e.g., student satisfaction, curricular coherence) and "hard" measures (e.g., graduation rates, competencies). In addition, they report the existence of increasingly sophisticated qualitative indicators and assessment tools.

It would therefore seem we are in possession of a partially holistic theory that focuses cost/benefit analysis on student learning productivity with the use of sophisticated qualitative indicators and assessment tools. As with Bowen's insightful cautions and Dickeson's novel methodology, however, there is no assumption here that a "maximal" theory of cost/benefit in American higher education is practicable. The probable reality is that there can be no single "objectivist" theory about educational costs and benefits.

Bates' ACTIONS Model

The explosion of technology in the delivery of education, a relatively recent phenomenon, is so vast a topic that generalizations about costs and benefits are bound to be dated and noninclusive. Given this limitation, we are nonetheless impressed by some of the literature on this topic and, particularly, the insights and influence of the ACTIONS model developed by A. W. Bates early in the 1990s.[14] His subject was distance education. Bates recommends that certain questions be asked in each of seven categories when developing and implementing any new technology. In describing his model, we substitute the term "innovation" for his subject, "technology."

- Access: to what extent will the innovation meet the requirement for where learners prefer or need to learn (home, work, local centers, on campus, in transit)?
- Costs: given the volume of program activity and the numbers of learners who are likely to be involved over the length of the program, will the costs of the innovation be acceptable?
- Teaching Functions: to what extent will the innovation meet the standards required for teaching, learning, and subject matter presentation?
- Interaction and User-Friendliness: how will learners and teachers interact, what will be the quality of their interactions, and what kinds of training are required of students and faculty to use this innovation?
- Organization: what changes in organization will be required to facilitate the use of the innovation?
- Novelty: how ready and attractive will the innovation be for faculty and students who will use it?
- Speed: how quickly and easily will the innovation allow its subject matter to be accessed, updated, and changed?

In our judgment, Bates' ACTIONS objectivist model can be a useful tool in planning, implementing, and assessing undergraduate educational innovations.

Bates recommends that certain questions be asked in each of seven categories when developing and implementing any new technology.

49

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In cost/benefit analysis, an **attempt is made** to express *both costs and benefits in monetary terms.*

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The Constructivist Perspective

The constructivists begin their formulation of a cost/benefit model by observing that there has been considerable difficulty in assessing the costs and benefits of undergraduate educational innovations over the past half century. Such a conclusion is fully warranted on at least five counts: First, we've already observed that the pursuit of an objectivist model for assessing cost/benefit relationships in American higher education continues to be a tempest. Perhaps there cannot be a single, holistic model that fits all collegiate institutions and all innovations.

Second, the constructivists note that the cost/benefit literature on undergraduate innovations is very thin and confined primarily to what can be easily measured. Even the once celebrated Carnegie Commission on Higher Education refused, in its study of comparative instructional costs, to deal with innovations such as non-programmed independent study, work-study, internships, and community service because "[theses forms] of instruction [are] so varied and amorphous that it would be difficult to reach generalizations about [them]."[15] What literature does exist is mostly unavailable archival reports, located at colleges and universities, rather than formal studies in the public arena. Our extensive conversations with on-campus leaders suggest three things. One is that such reports tend to focus on either the analysis of costs or the analysis of benefits but not the relationship between the two. A second is that most of these reports are rather primitive attempts to study costs and benefits. Yet a third finding (perhaps due to the second) is that campus leaders are very reluctant to share these reports beyond the boundaries of their campuses.

Third, the constructivists suggest that there are major definitional problems in most objectivist models of cost/benefit. Throughout this chapter, for instance, we have been using "benefits" as a synonym for "effectiveness." While we make no apology for this use of the term, a distinction between the two concepts is sometimes made in the literature. In cost/benefit analysis, an attempt is made to express *both costs and benefits in monetary terms;* this kind of analysis is normally associated with business or industry, where goals can be few and readily measurable (e.g., to reduce costs by increasing the speed and reliability of equipment). In cost/effectiveness analysis, on the other hand, costs are expressed in financial terms but benefits are expressed in *non-monetary, often highly intangible terms* that are extremely difficult to measure (e.g., the various educational outcomes desired in a college course, program, or degree). In the strictest sense, then, most ostensible cost/benefit studies in American higher education appear to have elevated the importance of "effectiveness" over the assignment of costs to "benefits."

Fourth, the absence of even a modest amount of formal cost/benefit literature on undergraduate innovations strongly suggests that other factors (creativity, enthusiasm, risk-taking, vision, marketing opportunities) have been the driving forces behind most innovations. Indeed, to the extent that the development of past innovations involved *systematic planning,* little attention has been given to the role and importance of costing-out alternative strategies.

Fifth, the constructivists note that only long after the fact of an innovation do cost factors tend to come into play. Furthermore, the cost factors often are introduced neither in the best of ways nor for the most benevolent of reasons; the very vulnerability of an innovation makes it an easy target for economic neglect or extinction. A constructivist premise (first stated in Chapter One) is that when anxiety about runaway inflation and the prospect of declining enrollments came to

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dominate the1980s, the focus shifted from educational effectiveness to the cost side of the equation, where it largely remains today. It was precisely during this period when so many of the undergraduate educational innovations that were created in the 1960s and 1970s lost influence or simply disappeared.

Is nothing to be said therefore about the costs and benefits of undergraduate innovations beyond our conclusion that most cost/benefit analysis in American higher education has been primitive? The qualified answer for most cost/benefit constructivists is no—there are steps that can be taken. However, if costs and benefits are to be effectively introduced into American undergraduate education, then five major problems must be addressed.

(1) The inability to accurately and fully define educational costs, because every unit of expenditure involves an opportunity cost (forfeiture of purposes or benefits that could have been funded with the same resource).

(2) The inability to measure true educational outcomes with a high degree of confidence, because such outcomes aren't (and probably cannot be) defined with sufficient precision.

(3) The inability to efficiently link educational costs and benefits, because the highly sophisticated and elaborate decision-making process required for this work may itself be an unacceptably high opportunity cost.

(4) The inability of colleges and universities to effectively use the business-industrial paradigm for assessing costs and benefits, because classical notions of productivity are inappropriate to higher education—a notoriously inefficient enterprise and a culture unto itself with its own integrity.

(5) The inability or unwillingness to acknowledge the non-financial dimensions of both costs and benefits in a complex human service institution like a college or university.

Constructivists go on to suggest that these problems can best be addressed by identifying a variety of approaches to assessing costs and benefits, as well as appropriate ways that each approach can contribute to the promotion of innovation in undergraduate education. In this way, we can begin with an innovation rather than a cost/benefit model and then select from among various approaches those that are most appropriate and useful in assessing the innovation. While this type of comprehensive review of existing approaches is not yet found in the literature, we offer a preliminary list of five strategies currently being used to assess undergraduate innovations in American colleges and universities. Each strategy is based on a particular function to be provided by the innovation in question.

Revenue Generation

Innovations are often "sold" within a college or university as a means of new revenue generation. Some innovations are introduced solely to produce immediate revenues, while others are designed for the long-term. In either case, there is no need for concern with any benefits other than income; there is minimal overhead and (often) large profit margins. Typically, this kind of innovation involves some form of contracted services (e.g., College A contracts with a senior citizen center to provide students who will read to center residents. University B offers a seminar on marketing for a local small business).

When this type of innovation is initiated, the real cost/benefit analysis must be done by the customer, not the college or university. The senior citizen center has to decide if the student readers are "worth" the expense, just as the small business must determine whether to continue contracting for the university's seminar rather than engaging another

Innovations are often "sold" within a college or university as a means of new revenue generation.

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It is also important that consideration be given to the financial benefits derived from the recruitment of new students by already enrolled students.

organization. The college or university need only be concerned about the compatibility of the contracted services with its values and overall mission; there is little else to consider, for the contract is pure profit (benefit) with minimal associated costs.

Cost Reduction

The second most common reason to embrace innovation in undergraduate education is cost reduction. Part-time faculty members, for instance, are often hired to reduce over-all instructional costs. In some cases, credit has been granted for life experiences as a way to reduce costs; the college receives tuition revenues from the student but pays only for the CLE review rather than providing costly faculty instruction. Some educational technologies, such as computerized grading of multiple choice exams, have also been introduced primarily to reduce costs.

When this type of innovation is subjected to cost/benefit analysis, attention is directed exclusively to a single financial goal: net cost reduction. Of course, it is important in this type of analysis to ensure that all costs associated with the innovation have been identified; there are always hidden costs.

Full Cost Recovery

In the case of major innovations, such as the introduction of a new interdisciplinary program or inauguration of a weekend college program, there is a reasonable expectation that the innovation will fully recover costs within a specific period of time. In such instances, a full- scale cost/benefit process is appropriate. Furthermore, primary attention to financial benefits and costs is equally appropriate. A new program for Asian students, for example, might be defined as "successful" when it is based on full cost recovery—including overhead.

When this type of analysis is warranted, direct and indirect costs must be identified (the concept of "cost center"), and direct and indirect sources of income must also be determined (the concept of "income center"). It is also important that consideration be given to the financial benefits derived from the recruitment of new students by already enrolled students. (In many innovative programs, 70-80 percent of admissions comes by way of referrals from current students or alumni).

Balancing Off Costs

In some instances, innovations in undergraduate education are introduced because the college or university exists in a world of dynamic external change. Shifting student demographics require the introduction of programs in new time slots. A new technology requires major capital investments and faculty training. A changing government regulation leads to new testing procedures or new facilities for disabled students.

In this type of innovation, the major focus of cost/benefit analysis may have to include not only the tangible costs associated with implementation but also likely "opportunity costs" of *not* proceeding with implementation. The issue of benefit may not even be broached in this type of analysis. Rather, the analysis must yield some sense of potential revenues that might be lost by not pursuing a new venture. Opportunity costs, then, need to be identified and added to the calculus along with projected expenses associated with program development and implementation.

Indirect Institutional Benefit

Some innovations are introduced not to generate new revenues or even reduce institutional costs. Instead, innovation holds a non-financial (and non quantitative) primary value for the institution (e.g., faculty development or improved staff morale). In other cases, innovation is intended to yield long-range benefits that

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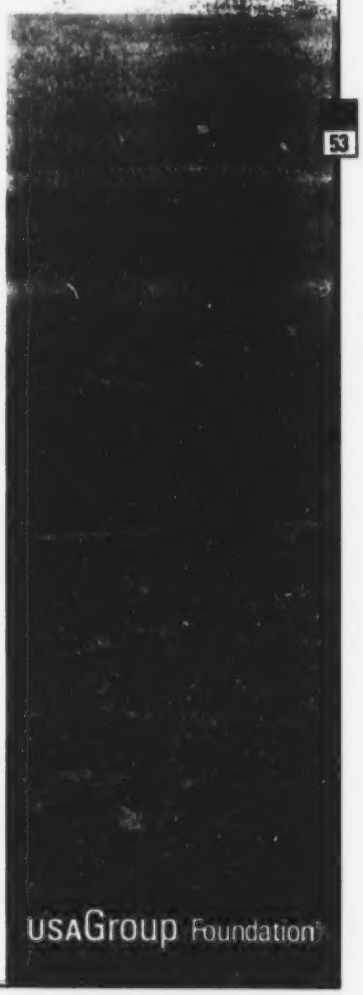
cannot be quantified before the fact of implementation (e.g., enhanced institutional reputation and increased attractiveness to potential funding agencies). Institutional leaders may decide to reduce or eliminate "expensive" programs using standard cost/benefit analyses, but such programs might have had the ultimate benefit of advancing institutional reputation which, in turn, generates new revenues (tuition, grants, public funding).

A cost/benefit analysis associated with this type of innovation must be systemic and extensive. Many variables must be taken into account, and estimates need to be made of the impact such variables have on one another. A paper-and-pencil tool like "cross-impact analysis" can be of value, and a computer-based tool like "I-Think" (using system dynamic principles) can be of even greater value, given the ability of this powerful computational tool to link quantitative and qualitative measures of institutional functioning.

"Expensive" programs might have the **ultimate benefit** of advancing institutional reputation and generating revenues.



Nearly every local innovation has a model as a stimulus and guide.

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Chapter Seven: Lessons Learned About Undergraduate Educational Innovations

We conclude this report with a number of observations that faculty and academic administrators might keep in mind as they learn how more effectively to link the creation and implementation of undergraduate educational innovations with planning, budgeting, and assessment.

The Lessons

The lessons we have learned grew out of our literature review and our *Survey of Undergraduate Educational Innovations*. We especially acknowledge the significant contributions that Everett Rogers[16] and Jack Lindquist[17] have made in illuminating this subject.

Lesson One: Think locally but look globally when conceptualizing

- Nearly every local innovation has a model as a stimulus and guide. None is a pure invention.
- When considering an innovation developed elsewhere, avoid seeing it as a finished product ready for precise adoption. Use background information as raw material for local development.
- Models of an innovation are most acceptable for local development when they come from credible sources (similar and respected institutions and traditional prestigious colleges or universities).

Lesson Two: First think small and simply, then more expansively

- Start an innovation as a small deviation from current practice.
- First try a small pilot project and have it evaluated by faculty opinion leaders.
- Base an innovation on a fairly simple idea. Then develop complexity through a series of building blocks, each tested and discussed along the way.

Lesson Three: Think in terms of organizational culture

- Avoid any innovative idea that is incompatible with institutional cultures,[18] values, and behaviors or that requires very hard work for acceptance.
- In dominant "collegial" cultures, where academic autonomy and disciplinary authority have supremacy, be prepared to have the development of any innovation tested against traditional practice and through extensive deliberations.
- In dominant "managerial" cultures, where control of academic decision making rarely tends to be in the hands of faculty, know that ideas for innovation will be most attractive and successful when associated with the prospect of new revenue generation.
- In dominant "developmental" cultures, where most faculty are steeped in visionary ideas about teaching and learning, know that an innovation will fail to materialize to the degree that the majority of its members lack political savvy in obtaining broadly-based agreement.
- In dominant "negotiating" cultures, where most members are primarily concerned with issues of governance and control, understand that an educational innovation is likely to suffer not from lack of political

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sophistication but from insufficient interest in teaching and learning issues.

Lesson Four: Think in comprehensive terms

- An innovation is not an island unto itself; avoid isolating it from the "big picture" within the institution. An innovation is most successful in the long-term when it is part of the larger context of curricular and professional development.
- Understand this dynamic: giving creative staff members the freedom to be inventive can produce good ideas; however, unless an innovation is carefully thought through and is part of a comprehensive plan, it is likely to wither on the vine.
- A comprehensive approach to innovation requires a focus on structures, processes, and attitudes. Leave out any one of these ingredients and an innovation will perish.
- The degree to which a college or university's organizational structure is characterized by centralization and formalized rules and procedures has direct bearing on innovation. Curiously, such conditions inhibit the creation and consideration of an innovation but can speed its implementation.

Lesson Five: Secure sufficient money, time, and administrative commitment

- Fiscal constraints are a major barrier to a successful, long-term innovation. An innovation that is solely or primarily funded by money from external agencies tends to end when that money ends. Unless there is good prospect for on-going funding by the institution, it is better not even to begin an innovation.
- Release or compensatory time for faculty or other staff is essential for successful planning, implementation, and assessment of an innovation. Such time also correlates highly with the level of human creativity that is demanded of an innovation.
- There is no more potent factor in influencing whether an innovation will succeed or fail than demonstrable commitment of the campus administration.

Lesson Six: Provide information to important constituencies and carefully manage its flow and influence

- Be deliberate in marshalling requisite organizational will and commitment. This basic requirement is more important to long-term success than the technical inner-workings of an innovation.
- Involve faculty opinion leaders and an advisory committee during the design stage of an innovation, as well as during its ongoing delivery and governance. Make certain opinion leaders and advisory committee members are linked by the same information.
- To avoid the risk of having an innovation perceived as an instrument of the administration, make certain there is highly visible faculty involvement at a policy level.
- When disseminating information about an innovation, emphasize the interaction of credible, trusted colleagues with cautious and skeptical members of the community.

Lesson Seven: Build the case with credible and persuasive evidence that links important external issues and local concerns

An innovation is not an island unto itself.

55

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What gets rewarded is what gets focused on.

- Even before developing an innovation, think about who the appropriate audience for it will be and how best to stimulate their interest in it.
- Use workshops, seminars, and reports to expose internal members of the community to the connection between critical external trends facing the institution and the possible adoption of local ideas (innovations) to address them. Gain initial community-wide support by keeping ideas for an innovation at a very general conceptual level.
- Be able to demonstrate that a proposed innovation has clear advantages over the "old way." If there is resistance to the evidence, or if the evidence is not accepted as compelling, respectfully request that detractors provide evidence that the "old way" has clear advantages over the proposed innovation.
- If in the planning of an innovation there is conscious awareness and testing of cost/benefit and cost/effectiveness issues, the innovation has a much greater chance of being implemented and becoming a permanent part of the institution's fabric.

Lesson Eight: Link innovations to existing reward systems

- What gets rewarded is what gets focused on. If research is rewarded and teaching is not sufficiently valued, there is little incentive to test new curricular ideas or improve teaching practices.
- Clearly link faculty rewards and evaluation to educational innovation. Ongoing innovation requires an integrated faculty evaluation and development program.
- Faculty evaluation and development have the same goals: improved faculty performance that results in improved student performance.

Lesson Nine: Ensure that leadership comes through service and influence rather than command and control

- Presidential fiat is not a good model for successful innovation.
- Those who make demands for organizational action either are gatekeepers to the political system or have access to or encouragement from them. The former are top authorities who are well-connected to information about external issues, innovative models, and internal practices—and are willing to take risks. The latter are innovators who have easy access to centers of authority. Both are essential for successful innovation.
- Typical committee processes for studying problems and designing solutions—exemplified by representational membership and a vague charge about a problem or concern—don't work. What does work are committees having exposure to outside practitioners and experts, early and continuous sharing of thinking and background information with review bodies, small groups rather than large forums to encourage friendly interaction among many rather than intense debate by a few, brief opinion questionnaires, extended meetings or workshops to explore a subject in depth, continuous leadership by a group of committed advocates, and faculty and administrative opinion leaders who plan and collaborate together throughout the entire process.
- Successful implementation of an innovation requires five conditions: clarity about the innovation on the part of those who will implement it, including what is expected of them; possession by implementers of the skills and knowledge needed to conduct the innovation; availability of required resources (human, financial,

time); compatibility of organizational arrangements with the innovation; and willingness on the part of implementers to expend the time and effort required.

Postscript

Our literature review and the responses to our Innovations Survey support the Center's claim that the past half century has been the "Golden Age of Innovation" in American higher education. This claim is not built on the premise that the Age is ending, but, rather, that there is a new consciousness within colleges and universities about the legitimate need to respond to continuous and significant change.

Of course, an institution's receptivity to change and response to it will be found in its self perception. If a college or university largely sees the future in terms of preserving its past, it will tend to question and resist change and have to live with the consequences. If an institution largely sees itself in terms of an ability to thoughtfully engage change and be an agent of change, it likely will thrive during the new millenium. The defining challenge for either alternative is to determine how change can be undertaken while advancing excellence in undergraduate education.

The past half century has been the "Golden Age of Innovation" in American higher education.

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Institutions Participating in the innovations Survey

Private AA
Keystone College (PA)
Trocaire College (NY)
(IL)

Private BA I
Birmingham Southern College (AL)
Earlham College (IN)
Hampshire College (MA)
Haverford College (PA)
St. Lawrence University (NY)

Private BA II
Columbia College (SC)
Dana College (NE)
Iowa Wesleyan College (IA)
(HI)
Kendall College (IL)
Newman University (KS)
Roanoke College (VA)
Shimer College ((IL)
The University of Findlay (OH)

Private MA I
College of Notre Dame (CA)
Saint Mary's College of California (CA)
Saint Peter's College (NJ)
University of the Incarnate Word (TX)

Private MA II
College Misericordia (PA)
Union College (KY))
West Virginia Wesleyan College (WV)

Private Doctoral II
Biola University (CA)
University of LaVerne (CA)

Public AA
Abraham Baldwin Agricultural College (GA)
City Colleges of Chicago Harry S. Truman College

City Colleges of Chicago Malcolm X College (IL)
College of Lake County (IL)
Cumberland County College (NJ)
Jamestown Community College (NY)
Johnston County Community College (KS)
Mississippi Gulf Coast Community College (MS)
Piedmont Community College (NC)
Rend Lake College (IL)
South Florida Community College (FL)
St. Claire County Community College (MI)
Thomas Nelson Community College (VA)
University of Hawaii Kapiolani Community College

Whatcom Community College (WA)

Public BA II
Langston University (OK)

California State University-Chico (CA)
Henderson State University (AR)
Moorehead State University (KY)
South Dakota State University (SD)
University of Colorado at Colorado Springs (CO)
University of Michigan-Dearborn (MI)

Public Research/Doctoral I
The University of Memphis (TN)
University of North Carolina Greensbsoro (NC)
University of Tennessee, Knoxville (TN)

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